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THOMAS Y. SIMONS, M. D.

AND

WILLIAM MICHEL, M. D.

OPINIONUM COMMENTA DELET DIES, NATURÆ JUDICIA CONFIRMAT.
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BE IT REMEMBERED, that on the twenty second day of January, Anno Domini, one thousand eight hundred and twenty five, and in the Forty ninth year of the Independence of the United States of America, Thomas Y. Simons M. D. and William Michel, M. D. deposited in the Office, the title of a Book, the right whereof they claim as authors and proprietors, in the words following to wit:

"The CAROLINA JOURNAL of Medicine, Science and Agriculture, conducted by Thomas Y. Simons M. D. and William Michel, M. D.—*Opinionum commenta delet dies, naturæ judicia confirmat.*—Cic. de Nat. Deor."

In conformity with the act of Congress of the United States, entitled "An act for the encouragement of Learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies during the times therein mentioned," and also An act entitled "An act supplementary to An act, entitled "An act for the encouragement of Learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies, during the times therein mentioned" and extending the benefits thereof to the arts of designing, engraving and etching, historical and other prints.

JAMES JERVEY.

District Clerk, S. C. D.

TO READERS AND CORRESPONDENTS.

We observe with pleasure a Work, published by the Agricultural Society, entitled—" Letters and Extracts on Agriculture." As far as a hasty glance would permit us to judge, it appears to us to be a valuable acquisition to the Agriculturist—and a work which every Planter should have as a book of study and reference. In our next number we shall take more particular notice of it—wishing it in the mean time extensive circulation.

It must be gratifying to our readers to learn that our venerable and distinguished fellow citizen, Dr. MATHEW IRVINE's work on Yellow Fever, is thought highly of in Germany, if we may judge from the flattering manner in which it is spoken of in a highly respectable German Journal.

The Lectures of the Medical college of South-Carolina, will commence on the second Monday in November—we hope to see them well attended.

We regret that we could not publish several communications sent us.

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ART. I.

An Essay on the Circulation of the Blood, by E. GEDDINGS, *M. D. Member of the South-Carolina Medical Society, and President of the Charleston Medical Society of Emulation.*

[Concluded from page 169.]

In entering upon a consideration of the Arterial System we are met by a great variety of conflicting theories, which conform neither to reason or fact. Some of the Physiologists, after the time of Harvey, not being entirely satisfied with the theory of this great man, (who, as we have before stated, maintained that the heart was the lobagust of impulse) built up a new theory, predicated in part upon that of Harvey. Instead of bestowing upon the heart that supreme dominion which had been conceded to it by Harvey, they admitted the arteries to a participation in the propulsion of the blood. This hypothesis was again submitted to several modifications.

While one party maintained, that the arteries were endowed with an highly irritable muscular coat, another affirmed that this only applied to the extreme ramifications, and that the primitive arterial trunks were simply elastic, and endowed with the property of irritability, in but a sparing degree. John Hunter* was, I believe, the prime mover of this last hypothesis, which has been generally received in several parts of Europe.

Bichat, who has written with so much ability on this subject, has adopted, in a great degree, the opinion of Mr. Hunter. In the minute capillaries, however, he supposes the blood to be moved, by what he terms an oscillatory motion of the vessels,† a principle altogether as unintelligible in its nature, when applied to the explanation of a vital phenome-

* Hunter on the Blood. Passun.
† Anatomie Generale, tome 2d.

non, as the wonderful æther, which served to sport with, and allure the minds of the philosophers of old.

The arterial system present several very important points for the consideration of the Physiologist. They are composed of three distinct coats, all differing in their texture and organization.

The external is made up of an arrangement of cellular tissue, very loose externally, and more dense and compact internally. It is also penetrated by blood vessels and nerves, which contribute to the nutrition and support of the artery. It is the internal, or compact portion of this tunic, which has been, by Anatomists, denominated the nervous coat of the arteries; but, that the arteries have no nervous coat, independent of the cellular, is proved by maceration, which converts this white portion of the tunic into cellular membrane.*

Dr. Monroe, jun. and some others, say, that the elasticity of these vessels, is located principally in the external, or cellular coat; and he also supposes, that the nerves exercise great influence over the artery, preserving their irritability.† That they exercise some influence is a natural conclusion, from the mere circumstance of their exertion, but we shall presently see, that the arteries are endowed with but a very moderate share of irritability, and that this exists independent of the nervous agency.

This exterior coat of the artery, though resolved into cellular membrane by maceration, is obviously distinct in some of its attributes, from the common cellular tissue, which invelops the whole body. This fact has been particularly noticed by Bichat, and he supposes it to be similar to the submucous, and subserous tissues, all of which, he denominates "tissue cellulaire,"‡ though he says, they are peculiar in their nature.

As a proof of this peculiarity, we never found in the cellular coat of arteries, and submucous and subserous membranes, those dropsical infiltrations, and those depositions of adeps, which take place so extensively in the common cellular membrane.

Beneath the external or cellular coat, we have the fibrous, or what has usually been denominated, the muscular coat of the arteries. This is called by Bichat "La tissue peculiari

* Haller's Element Phys. tome 1. page 12.
† Outlines of Anatomy, vol. 2, p. 347.
‡ Anatomie Generale.

a la systeme arteriele.*" It is firm and pretty compact in its nature, and is of a light yellowish hue. According to Hunter, Bichat, and their followers, it exists most abundantly in the trunks of the arteries, and but sparingly in the smaller branches, when its deficiency is supplied by the existence of muscular fibres which they supposed to exist in this situation from the belief which they entertained that the influence of the heart did not extend beyond the capillaries of the arterial system.

This hypothesis, being altogether the offspring of speculation, should be received by us, with a moderate degree of scepticism. Could we prosecute our remarks into the structure and organization of the most remote capillaries, with the same ease and certainty with which we investigate that of the large trunks, I am disposed to think, we should find a similar arrangement throughout. This is indeed a natural inference to be drawn from the premises, that identity of function necessarily implies an identity of situation, and the function of the whole of the artery being the same, it would be a subversion of all the rules of sound philosophy to say, that one portion of the tube is an inert substance, scarcely possessed of vitality, while the other is exquisitely vital in every respect.

The arterial fibres pass obliquely round the vessel, no particular fasciculi, however, forming a complete circle,† with the forceps, we are able to separate this peculiar texture in very thin delicate laminæ, entirely destitute of any admixture of cellular membrane, which is a circumstance that militates strongly against the hypothesis of the muscularity of the arteries. For whenever we find muscular fibres, we shall find them intimately inveloped in cellular membrane ; and, indeed, each individual fasciculus of these fibres, is surrounded, and bound to the others, by a process of this membrane.

There has been a great diversity of opinion with respect to the nature of the arterial fibre. Those persons who believe in the contractility of the arteries, took it for granted, that the mere existence of this principle, necessarily implied the presence of a muscular coat. Since they supposed, from a limited and erroneous view of the nature of the animal tissues, that muscles, alone, were capable of performing this office. Hence we find a majority of Anatomists affirming, in

* Anatomie Generale, tome 1st.
† Haller's Chemist. and Phys.

the most positive manner, that the middle coat of the artery is made up of an arrangement of muscular fibres. This, indeed, appears to have been the most prevalent opinion, from the time of Haller and Albinus, to that of Bichat and Scarpa, Monroe, Cheselden, Bell, and, indeed, nearly all the authorities, who published during this epoch, contended that the arteries are muscular, and the opinion is entertained, even at present, by Fyfe B. Barclay, and, in fact, a great number of the British anatomists.

Some, however, have expressed some degree of doubt on the subject, and have supposed that from the contractility of the arteries, a muscular coat was implied. Cuvier* and Richerand,† though they admit that the arterial fibre differs much in its colour and general appearance from muscular fibres, in man, and the smaller animals, yet, they affirm, that the analogy is very exact in the elephant, and from this circumstance they risque the supposition, that this tunic is muscular in all animals.

Hunter, as we have already seen, supposed that the larger arteries were simply elastic, and that this principle, gradually declining in the capillaries, was finally supplanted by the muscular fibres.

But Scarpa‡ and Bichat denied altogether that the arteries partook of the nature of muscles ; and the latter, after much attention to the subject, arrives at the conclusion, that it is a peculiar tissue, differing in its properties from all the known tissues in the animal œconomy.§

He does not predicate this supposition upon the mere difference of colour between it and muscular fibre, but upon data, which are much more conclusive and satisfactory.—This difference of colour would prove nothing, since we know, that nothing like red fibres can be detected in the snail, yet what man, in his proper senses, would deny, that this animal is muscular in a high degree. In some of the Gallinaciæ of Linnæus, and the muscle of the stomach and intestines in man and most animals, the fibres are white.

The muscular fibre is soft and very extensible ; the arterial texture on the contrary is firm, solid and extremely fragile; this is evinced by the effect of ligatures which when applied to the arteries divided both the internal coats.

* Lecour de Anatomie Campan. tome iii.
† Physiologie.
‡ Scarpa on Aneurism.
§ Anatomie Generale, tome 1st.

He thinks that there is no tissue so brittle as this ; and observes, that if we apply a ligature to the intestines, it will merely produce a flattening, or approximation of the fibres, but will not divide them.*

The effects of disease on the muscular and arterial coat are different, the one granulates readily when inflamed : the other never throws out granulations. In aneurism of the heart there is an unnatural developement of muscular fibres ; in the same affection in the arteries, there is a rupture of the fibres, with a dilatation of the cellular coat.†

They also differ materially in several of their other vital properties. The one is characterised by the highest degrec of irritability ; while the other, according to Haller,‡ Bichat,§ Magendie,‖ and others, scarcely affords a single indication of the existence of this principle.

The arterial fibres, notwithstanding the great facility with which they are ruptured in aneurism,are possessed,in the natural state, of a high degree of resistance. If we take one of the principle trunks, and drive in with a syringe, either water or air, it requires a powerful effort to rupture its parietes. This power of resistance is, indeed, sometimes so great, that the utmost efforts of a man applied in this way, are inadequate to overcome it.

Sir Clifton Wintringham and Mr. Gordon instituted a number of experiments, with a view of ascertaining the relative strength of the arteries and veins. The former has declared, as the result of his researches on this subject, that the veins are endowed with a greater degree of strength than the arteries ; but the validity of his deductions have been called in question, and the general opinion at present is that the arteries are characterized by superior power. We should naturally be disposed to draw this inference from a consideration of their comparitive organization : and this opinion has been established beyond contradiction, by the more recent experiments of Mr. Gordon, and other Physiologists.

This gentleman experimented by suspending weights to different portions of the carotid arteries removed from the body. To a portion of the carotid of a man, he suspended 30 pounds Avoiderpoize, before it gave way : and the exter-

* Anatomie Generale.
† Scarpa on Aneurism. Bichat.
‡ Elementæ.
§ Anatomie Generale.
‖ Price's Elementaire, tome ii. Also, Journal de Theologie, tome 1.

nal iliac did not break, until he had applied a weight of 48 pounds.

A transverse section of the carotid used in his first experiment, three fourths of an inch long, and one eighth of an inch in breadth, bore a weight of 5 pounds.

He found that when he forced air into the aorta, with sufficient force to rupture its parietes, it required a power equal to one hundred and nine pounds.*

Besides the differences between the arterial and muscular tissue, which have been already mentioned, we might adduce an abundance of evidence, of their entire difference, as well from their vital as their physical properties.

From a reference to the intimate arrangement of these two tissues, as developed by M. H. Mylne Edwards, of Paris, we shall find a most palpable difference. He has ascertained from minute microscopical observations, that the arrangement of the arterial tissue is precisely the same as that of the tendons.

It was long ago stated by Fontana, that the tendons are formed of minute fibres, placed parallel to each other, tho' possessing a beautiful undulated appearance. This opinion has been confirmed by M. Edwards and he has been able, by the assistance of the microscope, to demonstrate the same arrangement in the arterial tissue.

These ultimate fibres, according to him, are made up of globules, which, in the muscular tissue, instead of being undulated as in the tendenous and arterial, are perfectly straight and even.

As an argument, which places beyond contradiction the difference of this peculiar tissue from muscle, is that, which has been brought forward by Berzelius. This learned chemist, from a laborious and attentive investigation of the chemistry of animal matter, has discovered the fact, that the arterial tissue contains not a particle of fibrine, which is universally known, to form a large portion of the constituents of muscle. Beclard,† however, asserts, that he has been able to detect a small quantity of this elementary principle in the arterial fibre. But we are very much disposed to doubt the correctness of his observations, more especially, when they are so directly opposed to those of Berzelius, whose success in this department is unequalled.

* Gordon's Anatomy, vol. 1, pp. 57 and 58.
† Additions to Bichat's General Anatomy.

From a proper consideration of these facts, I think we are warranted in the conclusion, that the peculiar tissue of the arteries differs from muscle in all its attributes, and that it is as Bichat has affirmed, a peculiar texture, differing from any with which we are acquainted in the animal œconomy.

Independent of the two tissues which have been described, as constituting a part of the arteries, they are lined with a fine polished membrane, which is continued from the ventricle of the heart, throughout the whole circulatory system. It is extremely delicate and very easily lacerated, and is always found moist and shining, and not unfrequently displays a kind of variegated appearence, in consequence of ossific degeneration having commenced under its surface. It is peculiarly prone to take on this species of morbid derangement, so much so, indeed, that a great number of persons, in advanced life, are affected with an ossification of the arteries more or less extensive. We, indeed, frequently find in very old persons, nearly the whole arterial system converted into a bony substance.*

Of the precise nature of this membrane, we are entirely ignorant. M. H. Milne Edwards inferred, from his microscopical researches, that it was analagous, in its intimate arrangement, to the nervous membranes, but that it is completely different from this tissue, is, I think, obvious, from its properties, both in health and disease. In the nervous membranes we never witness the slightest tendency to ossific degeneration, which, as we have already seen, is peculiarly apt to take place in the living membrane of the arteries.—This membrane appears, so far as our means enable us to examine it, to be entirely destitute of blood vessels and nerves : the most accurate observations, with the microscope, not enabling us to trace, either vessels, or nerves, penetrating its substance.

The arterial system, taken as a whole, has been compared to a cone, with its apex to the heart. This comparison has been made, from the circumstance, that the aggregate of the diameters of the divisions exceeds that of the primitive trunks, hence it has been inferred, that the blood, passing from the principle trunks into the branches, has its velocity diminished. This perhaps, would be the case, if the heart

* In an old woman who was dissected last winter, in my dissecting room. The valves of the heart and all the principal arteries were ossified. The arteries of the lungs were likewise ossified, as well as those of the uterus, which last I have now in my possession as a morbid preparation. T. Y. SIMONS, *one of the Editors.*

was the only agent of impulse, but as we are disposed to admit the arteries to a participation in this office, we can by no means concede to the validity of the proposition, and, indeed, our opinion is corroborated by the experiments of Haller,* and Spallanzani,† who found, that the velocity of the blood was not at all, or but sparingly diminished, even in the most minute divisions of these vessels.

It would perhaps be more in conformity with the natural distribution of the Arteries, to compare the pulmonary Artery and Aorta to two trees, one of which ramifies throughout the lungs, and is subservient to the lesser circulation, while the other extends throughout the body, and constitutes the greater or systemic circulation.

The intimate structure of these two systems is the same, though the aorta, in consequence of the greater power, which it has to exercise, is endowed with a superior degree of strength.

The arteries, as they extend from the heart, divide and subdivide until they become so extremely minute, as to elude our observation, even when aided by the most powerful glasses. Of these some terminate directly in the radicles of the veins, while others terminate in the exhalent and lacerrent vessels, some of which, according to Ruysch, are convoluted, forming a glandular structure of diversified arrangement. Besides these, I think we are warranted in asserting, that some inosculate minutely with the lymphatic vessels. This can, indeed, be reduced to demonstration. Magendie informs us, that he has been able to force minute injection from the arteries into the lymphatics; the same thing is also stated by Mascagni, Cruickshank, Marjolin, and others. This fact, as we shall hereafter see, tends to corroborate the hypothesis of Magendie, which maintains, that instead of the office of absorption, of which they have heretofore been supposed to be the exclusive agents, they are really subservient to some purpose in the circulation.

Having considered the general structure and arrangement of the arterial system, we shall now proceed to enquire into the physical and vital properties by which it is characterised.

The first of these properties which we shall consider, is elasticity. This is posessed in a prominent degree by the

* Element Phys.
† On the Blood.

arteries, and tends to preserve their cylindrical form, and keep their parietes asunder. If we compress or bend an artery, it evinces a constant tendency to return to its natural condition, which it does, so soon as the force is removed. It is owing to this principle, that we always find the mouths of the arteries open when they have been divided. The locomotion, also, which exists so extensively in the arteries, is attributable to their elasticity. This is particularly conspicuous in those situations, where the arteries pursue a tortuous direction, and proceeds from the impulse of the blood, propelling against the highly elastic parietes of the vessel.

Elasticity is a property purely physical in its nature, and exists independent of vitality. After every spark of the vital principle has become extinct in an artery, and the artery has been separated from the body, we still see it preserving its elasticity unimpaired.

Some Physiologists have supposed, that this property was possessed in different degrees in different parts of the arterial system, and a few have even gone so far, as to limit its existence to the trunks and larger branches, supposing, that in the more minute divisions, the muscularity usurped the place of the elasticity. But these are mere idle speculations, unsupported by an appeal to observation. Magendie has declared, as the result of much labour and attention to the subject, that the smaller arteries are equally elastic with the aorta, or any of the principle trunks. This is in strict accordance with my own observation. I have examined a great number of arteries of all sizes, with a view of satisfying myself on this subject, without being able to discover any appreciable difference in the proportionate elasticity of the larger and smaller arteries.

Arteries are much more elastic in their longitudinal, than their transverse direction; hence, if we take a section of an artery, we can extend it to very nearly double its natural length, before we arrive at the extent of its elasticity; and the distending force being removed, it will again resume its former length and proportions. This property is by no means so fully developed in the transverse direction; we shall seldom be able to extend an artery in this direction to near so great an extent as in the longitudinal.

The elastic power which exists so pre-eminently in the arteries, tends much to facilitate and assist the motion of the blood through these vessels. It not only preserves the cali-

bre of the artery free and pervious, but at the same time, when distended beyond its state of repose, by the impetus of the blood, the artery contracts as the result of its natural tendency to return to the condition from which it had been removed by the wave of blood distending its calibre.

But this property is often much impaired by disease. In aged persons I have often witnessed a complete loss of the elasticity of the arteries, so far as their extensibility was concerned ; the artery, having taken on the nature of cartilage in this respect, that it was not posessed of any extensibility. This is particularly the case in ossification of the arteries, and those extensive dilatations to which the arch of the aorta is sometimes subjected. I am also disposed to think, from the tenor of my own observations on this point, that the contractility, or tonicity of the arteries are somewhat impaired. I am inclined to this belief, from the fact, that in every case which I have examined, where this morbid derangement has existed, I have found the large arteries completely full of blood after death. This could be only owing to an absence of that power of contraction, which the arteries possess in a natural state, and upon which their vacuity after death depends. It is also a fact, no less singular than true, that in almost every dropsical subject which I have examined during the present winter, the number of which has been considerable, there has been ossific degeneration in the arterial system, more or less extensive. May not dropsy, therefore, originate in some cases, from the propulsive power of the arteries being destroyed, by this derangemant of structure ?

The arteries are still endowed with another property, which is also independent of the vital principle, and assists us in an explanation of some of the phenomena, which take place in this system after death. It has no connection with the elasticity nor with the vital contractility of the vessel with which it has usually been confounded, but is a peculiar property, which continues to exercise some influence on the calibre of the vessel, for several hours after death. This property has been denominated by Bichat the contractility of tissue, which he affirms differs from the irritability of the arteries in this, that while the irritability requires, to enable it to act, the application of stimuli, the contractility of texture merely requires the absence of extension, and continues to act long after every trace of irritability has become extinct.

There has long been a diversity of opinion amongst Physi-

ologists on the subject of the irritability and sensibility of arteries. Haller and his followers, as well as a majority of the Physiologists of the present day, deny that they are possessed of this principle: but there are also a number, who maintain the converse of the proposition, and declare, that they are highly suitable amongst a number, who entertain this opinion, it will be sufficient to mention Verschuir, Dennison, Kramp and Blumenbach. The former of these Physiologists pretended to have succeeded, by experiment, in demonstrating the highly irritable condition of those vessels, but as their conclusions are in direct opposition to those of so many very able experimentalists, we are very much disposed to doubt their validity. We do this with the greater confidence, since Haller, Bichat, Magendie and Nyston, have experimented on this system, in every possible manner, without being able to discover either irritability or sensibility. If we apply cauteries, or pricking instruments, either to the external or internal surface of an artery, it remains fixed and immoveable. The same insensibility is evinced on the application of a stream of galvanism. One of the experiments of M Nyston is so conclusive on this subject, at the same time, that it proves the contractility of the artery, that I shall take the liberty of introducing it. "He applied a ligature, in a living dog, to the two trunks which arise from the arch of the aorta, and another to this itself above the origin of the iliacs. By this means the portion of vessel, included between the ligatures, remained full of blood, and in order to ascertain the point in question, he punctured the artery, about the middle of its length, with the very minute open point of a glass tube; the blood arose immediately in the tube, to the height of 6 or 7 lines, which point, being carefully marked, a stream of galvanism, was applied successively to different parts of the aorta, without producing the slightest appearance of motion, and the blood, instead of ascending in the tube, as it must have done, if the slighted contraction had taken place, remained stationary. From hence it appears that the arteries are entirely destitute of irritability, a character in which they differ from all the known muscular arrangements.

Proceeding in our enquiry, we shall next come to the consideration of the important question, do the arteries posess the power of contractility? This is a problem upon which Physiologists are not at all agreed. Those, who viewed the

heart as the exclusive agent of impulse in the circulation, affirm, that the arteries are destitute of this property further, than what proceeds from their elasticity, while others, from a limited and imperfect view of the subject, have affirmed, that because the arteries evince no irritability on the application of stimuli, they are equally destitute of contractility. But this is reasoning upon an imaginary proposition which will not admit of a rigid examination, for we know that contractility exists to a considerable extent in parts, utterly destitute of both irritability and sensibility. Thus, in the substance of the bones, which no man in his senses would say was irritable, we see the power of contraction displayed. After the removal of a tooth, the alveolar processes contract, and obliterate the socket, from which the tooth had been extracted.

A few, as Mr. J. Hunter, and Bichat, denying this attribute to the larger trunks, have admitted its existence in the smaller branches. Reasoning from ideal data, they supposed, that the influence of the heart did not extend further than the more minute divisions of the arteries, beyond which, it was necessary for the movement of the blood,to have a different arrangement, which according to them, consists in the muscularity of the extreme vessels. Hence, they supposed, that so far as the influence of the heart extended, no adventitious aid being necessary, the arteries were mere elastic tubes, which exercised no agency in the motion of the blood, further than this property was concerned.

But beyond the presumed limits of the agency of the heart, some power being indispensable to keep the blood in motion, they conceived the necessity of admitting the existence of this property in the extreme vessels. It is truly humiliating to the pride of science to see such great men indulge in speculations, so preposterous and unfounded, It is the more astonishing in the present instance, since it is so very easy to demonstrate in the most satisfactory and conclusive manner, the contractility of every portion of the arterial system. It is, indeed, so obviously displayed, in many of the phenomena of the circulation, that it appears to me almost impossible for any man, unless his mind was closed to conviction, to deny its existence.

If the arteries were the mere passive tubes, which they have been represented by these Physiologists, and the blood was moved exclusively by the agency of the heart, we should

see it alternately in motion and repose, according as the ventricle was in systole, or dyastole, since the blood, depending upon the action of the heart for its motion, this motion must evidently cease during the cessation of the contractile powers of the heart, and Mr. James Johnson affirms, that this really takes place; that the blood is alternately in motion and at rest. But it is very easy to disprove the truth of this assertion ; if we divide an artery the blood passes out in a continuous stream, forming, however, different parabolas; the greatest of which occurs during the systole of the ventricle. From this fact it appears, that, although the heart contributes much to the motion of the blood, yet the arteries are endowed with a power inherent in themselves, which is sufficient to move the blood through with diminished velocity.

This property is also manifested in the contraction and obliteration of wounded arteries, and the transformation of the umbilical vein and ductus arteriosus of the fœtus into a tendinous like substance. In this latter case, we have an instance of an artery almost as large as the aorta itself, converted into a small dense substance much diminished in diameter.

If we include between two ligatures a portion of artery, from which one or more lateral branches are given off, we shall see the blood evacuated spontanesously through these branches. Or, instead of this, take a portion of artery which sends off no branches, as the common carotid, apply two ligatures at some distance apart, and puncture the artery between, the blood will be forced out with a jet, and the calibre of the artery so much contracted, as to expel nearly all its contents.

The fact of the contractility of the arteries, and their consequent influence on the circulation, is corroborated by what occurs in some of the inferior animals, many of which have no heart, yet their circulation is as vigorously performed as in the warm blooded animals. We have, also, well authenticated instances of the absence of a heart even in man.*

The agency of the arteries is also proved by the projection of blood, which takes place from the aorta when punctured below a ligature, by the evacuation of the arteries during the quiescence of the heart, both in the living and dead subject. The veins in these cases being always distended with blood,

* C. M. Curtius de Monst. Human. cum Infante Geneallo. Cooper Phil. Trans, Waller oper Max.

by the remarkable diminution of the calibre of arteries of famished animals,and those which have died from hæmorrhage, as proved by the experiments of Haller, John Hunter, and Bichat; by the considerable jet of blood, from the aorta of an animal after death, which Haller informs us, he has seen extended to two feet; by the mortification, which occurs in persons whose arteries have become ossified; and by the inability of the heart to exercise much influence in those cases of extreme derangement of structure to which it is so frequently exposed; cases of which have been cited in another part of this essay. This is, moreover, rendered manifest, from the return of the blood to the heart, when its artery has been tied,having all that portion of the artery below the ligature empty. This is a most satisfactory proof of the ability of the arteries to move their contents.

But as carrying with it a force which must produce conviction in the minds of those who are most sceptical on this subject, I will recite an experiment from Magendie, which must forever set this question at rest. He laid bare, and separated from its attachments to a certain extent, the crural artery and brain of a dog, and passing a ligature under these vessels, he drew it round the thigh of the animal, and tied it in such a manner as to make all the blood flow through the crural artery and vein. He then applied a ligature to the artery itself, and in a very short time all the portion, below the ligature became completely void in its whole extent.

This case also proves the existence of a considerable power in the arteries, by injecting the mesenteric arteries of a living animal with alternate impulses of water irritating the contraction of the heart. In this case, instead of regular intermissions in the stream of water in the veins, corresponding to the impulse of the piston, we shall see it passing in a smoth continuous current.

Having, as we conceive conceded to the heart and arteries their true and legitimate agency in the circulation of the blood through the arteries themselves, we shall, in the next place, proceed to consider what influence they exercise on the motion of the blood through the capillaries and veins.

A great variety of opinions have existed on the subject of the passage of the blood from the arteries into the veins. Harvey, and his followers, believing, as they did, in the superior and exclusive agency of the heart, attributed this phenomenon to the impetus imparted to the blood by this organ.

But Whytt, and since his time Bichat, conceiving that the influence of the heart did not prevail beyond the commencement of the capillary system, bestowed upon this system a kind of independent existence, and maintained that the blood moved through them by what they were pleased to denominate an oscillatory motion. This is, indeed, to substitute speculation, for plain matter of fact, and instead of using the language of truth, to extricate themselves from the mazes of false conjecture, they neglected its assistance, and became entangled in a tissue of the most absurd and visionary speculations. Had they attended to the phenomena as they presented themselves, instead of the empty delusions of sophisticated reason, they could never have indulged in a conclusion so palpably erroneous.

To prove that the blood is passed into the veins by the conjoined influence of the heart and arteries, it will only be necessary to perform a modification of the experiment, which has been related above. Lay bare the crural artery and vein of a dog, and apply a ligature round the limb as in the other experiment ; then apply a ligature to the vein and puncture it, as we do in the operation of V. S. the blood will flow out in a full and continuous stream. If now we apply the finger to the artery, so as to obstruct the passage of the blood, the stream from the vein will continue for a short time, gradually diminish, however, until it ceases entirely, the artery having completely emptied itself : the vein in this case will remain distended with blood. We can again renew the jet at pleasure, by removing the pressure from the artery, and by different degrees of compression, we can modify the stream as we wish.

Magendie has varied this experiment, by introducing a syringe into the crural artery, charged with water of a temperature of about 30 reaumer. By forcing the piston with different degrees of force, he could vary the stream according to the force employed.

From the facts which have been detailed, it appears that instead of an oscillatory motion of the capillaries the heart and arteries themselves are the agents, by which the blood is propelled into the veins.

Before proceeding to investigate the moving powers of the blood in the veins, it will be proper to make a few remarks upon their structure and properties. They are much more thin and delicate in their conformation than the arteries, and

are always found collapsed when empty. Lining their whole internal surface, we find a continuation of the same delicate membrane, which we observed lined the arteries. It is, however, folded in several situations,forming a valvular arrangement. These valves do not exist, however, in the venæ portæ and the sinuses of the brain, which would appear to indicate some peculiarity of function in these parts. Exterior to this, particularly in the vicinity of the heart, we can discern a few longitudinal fibres, extremely delicate in their structure, and on the outside of this again the cellular, or nervous coat of some anatomists.

The aggregate capacity of the veins is much greater than that of the arteries, and their trunks and ramifications are also more numerous. The necessity of this exists, from the circumstance that the motion of the blood is much more tardy in these vessels, than in the arteries.

The veins are but sparingly elastic, though they are possessed of considerable extensibility. According to the experiments of Haller, they are more irritable than the arteries, but Bichat passed a stilette down through the cava of a living animal, without being able to discover any indication of either irritability or sensibility.

Numerous attempts have been made to discover the true agents of the motion of blood in the veins, but notwithstanding all the labour and ingenuity, which have been devoted to the subject, we can scarcely lay claim to any thing positive or certain. It has been successively attributed to the contraction of the heart—the agency of the arteries—the turgescence and contraction of the neighbouring muscles--the pressure of the muscular parietes of the different cavities as the abdominal muscles and diaphragm—the pulsation of the neighbouring arteries, and the power of derivation, by which is meant a tendency in the blood to pass from a narrow to a more vacant space. Respiration was also supposed to exercise considerable influence over the venous circulation. Bichat attempts to found an explanation on the supposition, that the blood receives an impulse from the capillaries, by which it is forced on in a kind of solid column through the veins, at the same time that the resistance of the vessels to a lateral distension, contributes somewhat in the process. To this he subjoins the hypothesis, that the ramifications of the veins exercised something like an absorbent power, by which the blood was driven towards the heart. His explanation

is, I think, not more satisfactory than those of his predecessors ; and, indeed, he himself candidly acknowledges, that the subject is involved in such obscurity, as not to admit of a satisfactory explanation in the present state of our knowledge.

It is needless that I should enter into a minute investigation of the individual claims of these different opinions, more especially since, as we shall presently see, all or a greater part of them contribute something in the process.

There is one, however, which, from its novelty, and the zeal with which it has been recently advocated, has a considerable claim upon our serious consideration. I allude to an hypothesis which was advanced by Dr. And. Wilson, about the year 1774, and which has been recently espoused by Messrs. Carson, Wilson Phillip, and James Johnson.—This theory is purely mechanical in its nature, and is predicated upon the supposition, that after the expulsion of the blood from the cavities of the heart a vacuum is formed, which, acting on the principle of a suction pump, draws the blood in from every part of the venous system. Dr. Carson has even extended this influence to the arteries themselves, and ascribes their vacuity after death to the suction power of the right auricle.

This hypothesis, however ingenious and plausible it may appear on a first view, will not bear the test of a critical examination. It is altogether irreconcileable in many of its bearings with well known and established principles.

From an examination of the mechanism of the heart, we shall observe a variety of phenomena which militate in a most forcible manner against the existence of this suction power. We have seen in our consideration of the passage of this blood through the cavities of the heart, that the auricle and ventricle acted alternately, and that the auricles were filled by the influx of blood from the veins, while the ventricles, by their contraction, forced it throughout the system.

Since, therefore, the active power of dilatation exists in the ventricle, and not in the auricle, the motion of the blood could not be facilitated by the suction power of the heart, even admitting it to exist; for the moment the contraction of the ventricle has ceased its dilatation commences, and the auricle at the same time contracts and forces the blood into the ventricle in such manner as to keep pace with the dilata-

tion of the ventricle, or even to assist in the process. Hence no vacuum can be produced, and this point conceded, as it must be, from an impartial view of the subject, the whole theory must be given up as untenable and erroneous.

Indeed there cannot be the least necessity for this vacuum, since we have seen, that the powers which propel the blood in the veins, are amply sufficient to force it into the heart, and even dilate its parietes with considerable force.

We have also, in the appearances after death, a proof of the complete sufficiency of the other agents, which move the blood in the veins, for every purpose of the œconomy, and of the nonexistence of this vacuum. This consists of the preternatural distension of the right auricle and ventricle, and the greater comparative magnitude of the right side of the heart than that of the left. That this increase of size could not depend upon the existence of a vacuum, and the influence of atmospheric pressure, is manifest from the very laws which govern these phenomena, it being an invariable character of this principle to continue its influence no further, than to a restoration of an equilibrium.

This distension of the right side of the heart, after death, was noticed long ago by Amiviliores and Wiess, and after them by Sabatier, who attributed to the obstruction of the circulation produced by the collapse of the lungs, while the blood was still sent forward into the veins and right auricle by the action of the left ventricle and the arteries.*

But independent of these objections to the influence of the dilating power of the ventricle in the venous circulation, we can adduce testimony which disproves it in the most positive manner. If we apply a ligature to a vein as in the operation of blood-letting the vein become distended below the ligature, and when punctured, the blood is forced out with such velocity, as clearly to shew, that no further power is requisite in the motion of the blood in the veins, than that which exists independent of any influence from suction exercized by the heart. Indeed, the very existence of such a power, instead of exercising a salutary influence, would constantly tend to derange the œconomy of the circulation, since the passage of a fluid into a vacuum, is entirely dependent upon the pressure of the incumbent Atmosphere, it is clear, that this pressure would influence the motion of the blood in the veins in different degrees, according to their situation : thus

* Anatomie de Sabatiere, Tome 4, Memoire 1.

the blood would be moved rapidly in the superficial veins, while in the deeper seated, it would be more tardy in its motion; and in some, as the veins within the cranium, and those which pass through bony canals, it could not be moved at all.

There is also an objection to this hypothesis, of no trifling magnitude, predicated upon the inability of such extremely delicate and flexible tubes, as the veins, to resist the pressure of the atmosphere so far, as to admit the passage of the blood. In this case, even admitting the existence of a vacuum, it could not influence the motion of the blood in the veins, since it is obvious, that when the ventricles dilate, the parietes of the veins would collapse, and preclude the possibility of the blood passing forward to the heart.

But setting aside these arguments, we can prove by actual experiments, the proper test of all our conclusions, that the heart exercises no such agency.

A portion of the vena cava abdominalis of a dog was seperated from its attachments, and enclosed in a ligature: an opening was then made above the ligature, by removing a portion of its coats, into which a determinate quantity of water was introduced, which, notwithstanding, this imaginary power of the heart, was returned in a few minutes, although every precaution was taken to preserve the opening of the vein free and unobstructed.

Another medical gentleman performed an experiment, which I think very conclusive on this subject. He introduced one end of a large tube, into one of the large abdominal veins of a dog, and placed the other in a bason containing water; no effect, however, was produced, notwithstanding the experiment was repeated a number of times.*

It is somewhat astonishing, that men who have ever evinced such an extent of talent and ingenuity, as Wilson Phillip and Mr. Carson, should suffer themselves to be so far lead away, by the empty delusions of false theory, as to advocate for a moment, an opinion, so utterly untenable in its nature, and so palpably erroneous in all its bearings.

Having now, as we conceive, proved satisfactorily, that the veinous circulation is not maintained by the influence of what Mr. Carson has been pleased to denominate a suction pump, we shall proceed to enquire into the agency by which it is performed, and as according best with the plan, which

* See Mr. Fayden, Edinburgh Journal, No. 81, 275, 276.

we have proposed, as it is also instrumental in the arterial circulation, we shall first consider the influence of respiration.

The fact, that the process of respiration exercises some influence upon the motion of the blood, was long since noticed by Haller, Lamure and Lony, who were induced to bestow considerable attention upon the subject, in consequence of some observations of Schliting, which went to prove that the pulsation observed in the brain, was due to the motion of the chest in respiration. They observed, that during inspiration, the course of the blood to the heart was facilitated, while on the contrary, in expiration, it was retarded, and even driven back into the great veins. They were also sensible, that the motion of the blood in the arteries was influenced by the motion of the chest.

More recently the subject has been treated with great ability by Messrs. Cloquet, Bourdon, Magendie and Kerguadu, from the observations of whom, it appears, that respiration not only influences the motion of the blood in the veins by a direct action, but also, by an influence extended through the heart and arteries. We can, by observing the jugular vein of a lean subject, or by exposing this vein in an animal, see most clearly, an alternate distension and vacuity of the vessel, corresponding to the contraction and dilatation of the chest in respiration. When the chest expands the jugulars become almost void, from the ready passage which is admitted to the blood, but during a full expiration, they are highly distended, and the blood is driven in a retrograde direction in the vein, producing a sensible locomotion in the vessel, which has been called, by Haller, the venous pulse.

To render this phenominon more manifest, it will only be necessary to open the jugular vein, and pass a tube thro' it down to the auricle of the heart. when we shall see, that during expiration, the blood will flow out at the end of the tube. The same thing will take place, if we pass the tube through the crural vein in a direction towards the heart.

The influence of respiration on the motion of the arterial blood is manifested, by the acceleration of the circulation which ensues upon preternatural exercise ; by the increase of the jet of blood from a divided artery, during a forcible expiration, or during the struggles of the animal on which the experiment is performed. And Lamure observes, that if we

compress the chest, the stream of blood will be augmented, in proportion to the force employed.

From an examination of the circumstances attendant upon the influence of the motions of the chest upon the arterial circulation. We shall see how this influence is extended to the veins, through the medium of the arteries, since we have seen contrary to the belief of a number of Physiologists, that the agency of the heart itself, extends even to the veins through the minute ramifications of the capillary vessels.

In order to test the validity of this opinion, M. Magendie applied a ligature upon the jugular vein of a dog; the portion below the ligature became empty immediately, but the portion above was distended with blood. He then made a small puncture above where the vessel was tied, so as to admit of a moderate stream of blood. The jet did not vary materially under the influence of the ordinary movement of the chest in respiration; but when a full expiration was performed it was increased to four times its former size. The same phenomenon took place on treating the crural vein in a similar manner; the jet was greatly augmented either by a full expiration or by compression of the chest.*

From hence it appears, that notwithstanding the fulness and distension of the veins during expiration, is due in part to the retrograde flow of blood in these vessels,as was believed by Haller and Lamure, it is nevertheless, owing principally to the impulse imparted to the arterial blood, by the motions of tne chest, extended to the venous circulation.

A knowledge of this fact will, I think, assist us much in an explanation of the causes, which move the venous blood.

Indeed, when we consider the velocity with which we saw the blood entering the veins, by the impulse of the heart and arteries, and add to this, the agency of the motion of the thorax in respiration, we shall find, that but little additional power is required in the process.

The venous blood is, however, influenced by a variety of circumstances, upon which it is not necessary we should bestow a separate consideration. We have seen that the veins are elastic, and that they contract with sufficient force, when punctured, to expel a portion of their contents. It is obvious, therefore, that both these properties contribute somewhat to the performance of the venous circulation. The

* Journal de Physiologie, tome 1.

contraction of the surrounding muscle; the compression of the muscular parietes of the different cavities; gravitation, and a variety of other agents, all tend, moreover, to give impulse to the venous blood, and keep it in motion. It is, however, not in the limited influence of any particular agent, that we are to expect to find a solution of this problem, which has so long puzzled and perplexed the ingenuity of physiologists, but in an assemblage of phenomena,the influence, of which, though trifling, considered individually, is, nevertheless, very great in the aggregate.

Having completed the consideration of the circulation, as it has been generally described, it perhaps might be expected, that we should bring our observations, imperfect as they are, to a termination. But in compliance with the plan which we prescribed for ourselves, at the commencement of our researches, there still remains one important subject for investigagtion : I mean a consideration of the œconomy of the lymphatic system, and the part which it performs in the circulation.

In entering upon the subject, we are met by such a mass of difficulties, that it is with the utmost diffidence we venture to hazard an opinion on a theme that has called forth the attention of some of the most celebrated Physiologists of the last century, without their being able to arrive at any thing which could be based on the firm and immutable foundation of experience. We feel the greater hesitation in attempting an investigation of this subject, because the remarks which we are about to make, though supported by authority of just celebrity, are, nevertheless, in direct opposition to the opinion of nearly all the Physiologists of the present day. But I am encouraged in the undertaking, from a consciousness that a man is warrantable in pursuing the march of truth, however repugnant his conclusions may be to those which originating in ignorance, have become consecrated by the sanction of great names. I hope, therefore, that any remarks which I may venture upon this subject, in opposition to the received and accredited dogmas of the day, may not be imputed to presumption, since my only motive is a sincere love of truth and the advancement of science.

The lymphatics are minute transparent vessels, which ramify very extensively in almost every part of the body.—They are superficial and deep seated, and inosculate very extensiveiy with each other, forming, in many places, a reti-

culated structure of beautiful arrangement. They likewise, at different intervals, pass through the substance of round glandular bodies, in which they are convoluted in a most surprising manner. These glands were supported by malphigi, to perform the office of so many independent hearts, each one giving impulse to the fluid in its cavities. The principal of the lymphatics finally unite, and form one common trunk, called the thoracic duct, which empties itself into the left subclavian vein, near the point of union between this vein and the jugular. These vessels are made up of two coats. The internal of a delicate, though strong membranous consistence, is folded in at several points in such a manner, as to form a pretty strong vascular arrangement. The external is fibrous, at least on its internal surface, perhaps cellular externally, and is highly elastic. The lymphatics are also irritable, since Haller observed, that they contracted on the application of sulphuric acid. They also contract, so as to propel their contents independent of any adventitious aid from pressure, or motion of the body.

With respect to the precise manner and situation of the origin of the lymphatics, Physiologists differ in opinion. It is probable, hower, that like the termination of the arteries, they originate differently according to the office which they have to perform.

Some of them, perhaps, arise from the cellular membrane, and from the whole extent of the secreting and exhalent surfaces; and, perhaps, may be subservient to the office of absorption. But there is still another portion, which unites with the minute termination of the arteries, and seem to perform some part in the œconomy of the circulation. Proofs of this connection between the arteries and lymphatics are to be found, in the facility with which coloured fluids pass from the former into the latter, when used as injections. In many cases common injections, thrown into the arteries, have passed readily into the lymphatic vessels. This connection has been admitted by Mascagni, Cruickshank, Marjolin, Magendie, and, indeed, almost every Physiologist who has devoted any attention to the subject. Is it not manifest, therefore, that those vessels, instead of being exclusively subervient to absorption, really constitute a portion of the apparatus of the circulation? This was the opinion of the older anatomists, who first described them, and has been advocat-

ed by Booerhaave, Meckel and others, who admitted the veins to a participation in the function of absorption.

A number of arguments might be brought forward to corroborate this hypothesis, but from our restricted limits we shall be prevented from referring to more than two or three. In the first place, if we examine the fluid which these vessels contain, we shall find it of a thin reddish appearance, differing altogether from the serous and other fluids, which they were supposed to absorb from the different cavities and surfaces of the membranes. This fluid has the same appearance throughout, which could not be the case, was it the mere excremertitious mass, which it has been represented, since this must vary according to the particular region or situation, from which it had been taken; thus from the venous cavities, we should have a thin limpid fluid, from the mucous surfaces mucus, and, indeed, we should find the contents of the vessels varying in every part of the system. If we inject coloured substances into the venous or other cavities, they are not observable in the lymphatics on examination after the experiment, but may be detected readily in the veins. Much importance has been attached to a circumstance which occured to M. Dupuytren, of Paris. Examining a tumour on the thigh of a woman, who had died in the Hotel Dieu, he had scarcely divided the skin, before he remarked white points upon the lips of the incision. He carefully dissected the skin to a certain extent, and found white lines, as large as a crow-quill, running over the cellular tissue. These have been supposed to be lymphatics filled with pus. But even admitting the truth of the supposition, it does not follow, that because they contained matter, that this matter could only be taken from the tumour. It might have been formed by the vessels themselves, in consequence of their becoming inflamed, from their connection with the tumor. We see, very frequently, these appearances in the cavities of the veins, when they have become inflamed from the puncture made in blood letting, or from other injuries.

When we reflect on the connection between the minute arteries and lymphatics, and the analogy which exists between the contents of some of the capillary vessels and the lymphatics, I think we are warranted in forming the conclusion, that the thinner portion of the blood deprived of a portion of its red globules, passes from the arteries into their vessels, which being destined to answer some important pur-

pose in the animal œconomy, it is necessary it should pass through these vessels in order to undergo some change, before it can be adapted to the purpose for which it is intended. This, we are disposed to think, is the legitimate office of the glands, since it is the peculiar province of all glandular arrangements, to produce some change on the fluids submitted to their influence.

We have now brought to a hasty conclusion our remarks on the important subject of the circulation, in the discussion of which it has been our constant endeavour to make an unbiassed examination of the different points as they presented themselves and confine ourselves, so far as practicable, to a detail of facts, from which we have thought ourselves warranted, in making the deductions which are to be found in the different parts of this dissertation. If it should be considered, that we have succeeded in this attempt, we shall be gratified, but if failure is the result of our labours, we hope it will be attributed rather to a misapplication of principles than to any fault which they may possess.

ART. II.

An account of an Epidemic which prevailed in Louisville, Georgia, in the years 1816 *and* 1817, *read before the Medical Society of South-Carolina, Charleston, by* FRANCIS Y. PORCHER, M. D.*

In complying with one of the requisites of our Society, I have selected for the occasion, a short account of an Epidemic disease, which came under my observation in the winters of 1816 and 1817, during my residence in Louisville, in the state of Georgia. In the history of this disease I have done little else than thrown together such notes and observations as were then made ; they were taken from the bedside of the patient, and as a faithful relation of an extraordi-

* We particularly beg the attention of our readers to this highly interesting account of one of the many Epidemics which present themselves in different parts of our widely extended country.—*Editors.*

nary form of disease, I trust it will not be wholly uninteresting to you. Although I am not sensible that local situation had any influence on the disease under consideration, yet it may not be amiss to give a brief topographical sketch of that section of country.

Louisville, the former seat of government of the state of Georgia, is situated on an elevated plain near the Ogechee river, in the county of Jefferson; distant from Savannah, in a north west direction, 100 miles, and from Augusta 50 miles. The face of the country for many miles around, is variously broken and uneven; the soil varies, from the gray to the sandy, and the clay, very little of the dark loam; the growth generally a mixture of the pine and oak, more however of the latter; the country well watered by fine large and rapid streams, on which are erected mills of different kinds; and thickly settled by a hardy and industrious class of people, enjoying all the wholesome necessaries of life.

Intermittent and remittent fevers prevail regularly every summer and autumn, and sometimes extensively and fatally, attacking alike the stranger and the native. I could not learn that any severe winter epidemic had ever before prevailed there; catarrhal affections, pleurisies and peripneumonias, were the usual forms of winter disease, but afforded nothing remarkable in their character. The disease which I am about to describe, I believe to have an identity of character with the epidemic that ravaged and desolated some of the most salubrious portions of the Northern and Eastern States; it was there variously denominated, the spotted fever, cold plague and typhoid pneumonia. We are informed that in its fell career through populous sections of country, neither age or condition were exempt; as though directed by a supernatural agency, all other diseases were banished from around, while that alone reigned the tyrant monarch of the place.

If I mistake not, the first appearance of spotted fever was in Massachusetts, in the winter of 1806; from there it gradually moved on to Canada, disappearing in the summer and recurring again at each return of winter, and having a regular progressive march to the South; in this way it could be distinctly traced, for a succession of winters, still bearing on its front the same gigantic form of disease.

That this disease was an extension of the same epidemic which prevailed to the North and East, there can be no

doubt ; the numerous accounts given of it all agree in the general pathognomonic symptoms. The following circumstances, however, has the more confirmed me in the opinion. In the year 1818, I visited the states of New-York, Pennsylvania, Delaware, Maryland, Virginia, and North-Carolina, in all of which places a severe epidemic disease had prevailed, under the different names before mentioned. I was at some pains in collecting and noting down,all the information I could obtain on its first appearance, progress and symptoms ; on comparing these several accounts, there appeared to be a striking coincidence in the most prominent character and features of the disease. From these facts I have been induced to consider—*First*, That an epidemic disease prevailing in a northern, looses nothing scarcely of its character should it progress to a southern latitude, even if its arrival be delayed for several years. And, *secondly*, That we should never be inattentive to violent epidemic diseases, however distant their prevalence may be from our individual place of action.

The first appearance of this disease in the neighbourhood of Louisville, was in the month of November, and was then regarded only as an ordinary catarrhal affection ; as the winter advanced, however, it developed a more serious and malignant character, and this in a ratio to the intensity and duration of the cold ; in the months of January and February, it appeared to have attained its utmost state of severity. In that time entire families were taken off, and the stoutest hearts were appalled by the devastation it had made. As the spring advanced, a sensible change was made in its character and appearance ; cases became less numerous, more mild and uniform in their course, and on the setting in of temperate weather, it abruptly took its departure. It is to be observed that during its continuance, some neighbourhoods and tracts of country, suffered from its violence much more than others, and that it did not manifest a predilection for similar situations ; it was often found to ravage alike, the elevated and dry country, and the rich bottom settlements adjacent to the river. No age was exempt from its invasion ; children, however, and those in the meridian of life, were found to be most obnoxious to it ; the frugal and the sober, the luxurious and the intemperate, were alike liable. It would very far exceed the limits assigned to this paper, to enter minutely into all the symptoms which this pro-

teus disease would occasionally put on. It will only be practicable to detail its most usual and prominent features. In some of the most severe cases, three well marked and distinct stages of disease were to be observed, but which were not always in a ratio to each other, either in relation to intensity of degree or duration; this will be shewn in the sequel. The first, and often the most dangerous, was the state of OPPRESSION, here the most sudden and unexpected change would occur, from perfect health to extreme disease. The patient would be first assailed by a rigor or severe chill, followed by a tensive pain across the forehead, a sunken and dusky countenance, with inexpressible marks of distress; heaviness and difficulty of moving the eyes, so as often to give them a fixed appearance. The skin dry, shrivelled and cool or cold to the touch: its sensibility greatly impaired, so much so, as to be sometimes burned by the hot applications made without the patient being sensible of such impression at the time; in this state blisters would scarcely ever produce their effect. The pulse uniformly small, sometimes quick, tho' more frequently slow and strugling; on feeling over the region of the heart, a convulsive and often a *strong* action could be felt, quite disproportioned to that indicated by the radial artery. The tongue, after a few hours covered with a thick mucus, and exhibiting a bloated and livid appearance, and partaking of the same insensibility with the cutaneous surface, so as to be unable to distinguish the most nauseous medicines. The respiration slow and laborious, with frequent sighings, and great sense of weight and uneasiness at the precordia. The intellectual functions very much disordered; if delirium be present it generally was the low muttering kind; the mental perceptions generally very much blunted, with an inability to fix the attention for more than a moment on any one subject, and a total insensibility to the existing danger. This state of the intellectual powers resembled very much an extreme case of idiocy, and would often terminate in coma. The length of time occupied by this state of oppression, may be variously put down at from 6 to 48 hours, or even longer; during this period some changes would occur worthy of particular notice, either by the natural efforts of the system alone, or assisted by remedial means, the most violent of the above symptoms would be mitigated; there would be for instance, some improvement in the pulse and in the respiration; the acute pain in the head changed

to a dull heavy sensation; the skin resume its natural temperature though not its softness; the patient may now be able even to sit up in bed and take nourishment; he is unable to point to any one part as the seat of his suffering, though his countenance denotes great distress: his articulation is indistinct and drawling; there is much restlessness with disturbed slumbering. In this state the system would be vacillating between oppression and reaction, and was calculated too often to mislead the physician and friends. The patient would indeed be comparatively better, and to appearance continue so for several days; if at the expiration of that time, reaction followed, he might do well, but if, as too often happened, the system after various struggles, failed in its salutary efforts, coma, from congestion in the brain would close this short but distressing scene. Such would sometimes be the overwhelming force of the remote cause, as to prostrate the system below the point of reaction, and life would be extinguished in this first state of universal torpor and oppression. There were many anomalies in the first attack; in some of which the nervous system appeared to be more particularly affected; in such, there would be pain in the extremities resembling acute rheumatism, suddenly shifting to the head, the muscles of respiration and the intestines, it would often be so severe as to extort cries from the most firm and resolute. Another very common symptom was a fixed pain in the scrobiculus cordis, extending up the sternum in the course of the mediastinum, and through to the dorsal vertebræ, the pain, although extremely distressing, was not described as being acute, or as having moments of aggravation, but as uniform in degree, and with a sensation to use their own words, as if the parts were compressed or pinched.

In aged people, it was not uncommon to meet with sudden and vast effusions of mucus or sanies in the bronchial tubes, by which life would appear to be destroyed,solely by mechanical obstruction to the ingress of air. Again we would witness a monopoly of diseased action in the vessels of the eyes and throat, in the former terminating in purulent ophthalmia, and in the latter cynanche tonsillaris, on these parts disease would be insulated, and there spend its violence. Bronchitis was another and common form differing in nothing from what we usually meet with, unless it was in the engorged state of the vessels of the lungs; in slight cases it would terminate in convalescence, by a copious expectoration of thick

mucus nearly resembling pus. From this state of oppression the system would emerge, and the *second*, or that of *reaction* be formed ; here the pulse would be more slow, regular and expanded, the emptied vessels on the surface would be filled, a general diffusion of warmth over the body, the tongue moist, the respiration less laborious, and the intellectual functions restored to their natural state.

I have observed, that the different stages of the disease were not always in a ratio to each other ; in this second state it would be often manifest, for after many hours of previous torpor and distress, we would witness only a common form of arterial excitement, having nothing beyond the paroxysm of an ordinary intermittent fever, and ending in convalescence in a short time. Again, however, we would witness a very different state of action ; the danger which the patient had escaped in the onset, was not greater than that in which he was placed in this. The pulse would now become firm and tense ; the carotids beat violently ; the countenance flushed and bloated ; the eyes inflamed and projecting ; the pupils contracted, with great intolerance of light ; here strong and fixed determinations would be rapidly made to organs essential to life, followed by either functional or structural derangement.

This stage of disease would have a continuance of from 3 to 8 or 9 days, with little exacerbation or remission of fever ; excitement would be subdued and equalized gradually, until either convalescence or prostration took place. In this stage petechiæ would make their appearance ; they have been compared to the measles, bites of fleas, or mosquitoes, they certainly have a close resemblance to those appearances. They would in this state have a bright red colour and vary in size from the head of a pin to a small pea ; the margin of these petechiæ would have an abrupt termination, and could not be made to disappear on pressure ; on passing the hand over the surface no eminence could be discoverable in them, nor did they terminate by desquamation, but suddenly, without any gradual change of colour. They usually occupied the breast, back and lower extremities. I have never been able to account satisfactorily for their nature and appearance, they did not seem to be mere extravasations of blood under the cuticle, otherwise we would witness the same gradual process of absorption, with changes of colour, as we every day meet with in that affection ; their time of appearance

was not uniform, nor connected with any state of crisis, neither were they present in every case. Dissections would often shew their existence in the stomach and alimentary canal, both when they had been on the surface and when not; and I am inclined to think, that they often exist there, when there are no external appearance of them.

The third and last stage would be characterized, by great prostration, or collapse of all the vital powers, and would appear to be the result of an exhaustion of the excitability; this state afforded nothing peculiar, a similar one is to be found in the terminatlon of most forms of fever. The petechiæ, if not present in the second stage, would now make their appearance, but of a purple or dark colour, and if previously existing would change to this hue.

In the treatment of this epidemic, physicians soon found, that they had to contend against an enemy of no ordinary kind, and he who had been in the habit of managing his common cases without the trouble of reflection or discrimination, had the mortification to see all his routine efforts completely set at naught. A spirit of enquiry was soon excited; the questions were, what is the nature of our new disease and what the appropriate remedies? In this there was great discrepancy of opinion; many physicians in that country, contended that the destructive principle which first assailed and threatened the extinction of life, was of a highly stimulating nature; that the system would necessarily succumb on the application of this powerful stimulus; that indeed it was a state of *indirect debility*, and called for the graduated application of stimuli. There were others who contended that this destructive principle was of a direct *sedative nature*, which could in a moment of time rob the system of its healthy quantum of excitement, and leave but little excitability and that the most prompt and bold administration of diffusible stimuli was called for, by which the small remains of excitability would be acted on, and healthy excitement produced; that if stimuli, in this state, were given in small quantity, it would only tend to waste the small remains of excitability, without effecting the object in view; therefore, large and repeated doses were only beneficial. This, indeed, on first view appeared plausible and accorded at all events very well with the Brunonian doctrine.

The first cases which I witnessed, were treated on the stimulating plan, and however successful it may have proved

in the hands of others, with me it completely failed. It is unnecessary to detail all the various plans and modifications of treatment, which were pursued by different physicians, I shall only give that which was found most successful, and which seemed deducible from the Pathological views of the disease; in this no originality can be claimed, as a similar plan has been adopted, by some Northern practitioners, and with most decided advantage.

When called to a patient labouring under a violent attack, and in the first stage of this disease, the following were the phenomena which would particularly arrest the attention of the physician, viz.—The sudden change, from health, to the extreme of disease; the violence of pain, with its rapid changes of situation; the cool and often cold state of the surface; the cutaneous circulation impeded; the pulse small and irregular; the heart convulsed; the countenance sunk, with a peculiar look of distress; the respiration deep and laborious; the intellectual functions disordered. We are of opinion that this black catalogue of symptoms is the consequence of a broken balance of circulation, between the arterial and venous system, or in other words that venous congestion exists to a greater or less degee. That this particular state exists, we infer from the following consideration;—1st, The emptied state of all the superficial vessels and the engorgement which dissections shew of most of the large and deep seated veins, particularly those about the right side of the heart; and 2dly, From the success of the means to be hereafter mentioned in restoring a just balance of circulation. Again, we are informed that our patient a short time previous, was in possession of his usual good health, that he was one of strong muscular fibre, having a good vigorous circulation, and without any evacuation, we find him with a small thread-like pulse, and the above mentioned symptoms of great distress. The question is, what has become of the blood which had a little while previous been present in the arterial tubes? It has certainly not been disposed of by arterial determinations to particular parts, for this state of things belong to a high arterial excitement; we believe then that there is an *arrest* of circulation, and that to be in the veins, constituting venous congestion.*

* In refering disease here to this kind of vascular derangement, we are led to a few observations on the Physiology of the circulation. It has been well observed that "the heart being placed between the arterial and venous systems, appears to be the great agent that regulates the equilibrium of the blood throughout both. If therefore, the ar-

From this brief pathological view, our efforts then are directed solely to the restoration of a just balance of circulation; to this end warmth should be immediately applied to the surface, and if the convenience for a bath be at hand, let that be used without delay; if not, surround the body with bottles of hot water, or hot bricks; warm drinks should not be used. An infusion of the Serpentaria Aristolo: I have found preferable to all others; it should be given warm and repeated every half hour in small quantity, so as not to oppress the stomach. Frictions with Spirits Turpentine and the Cayenne Pepper, will be found of much advantage, by its stimulant properties it keeps up a certain cutaneous circulation. After some little time a sensible improvement will be made on the capillary vessels. the patient will express himself as being in some measure relieved; "nature is making an effort to cast off the oppressive load." Blood should now be taken away; the quantity must depend on circumstances, from 4, to 6 or 8 ounces; the external warmth should be unremittingly continued, as also the infusion of serpentaria. The first abstraction of blood will generally be found to make a decided alteration in the state of the pulse and respiration; the former to have acquired more strength and fullness, and the latter more freedom and ease; in a few hours after, it may be necessary to repeat the operation to the same quantity or perhaps more; in this way blood may be taken with great advantage in the first 12 or 24 hours of attack; the quantity and times of repetition must depend on the sagacity of the physician, who should never leave his patient until he has safely conducted him through this state of danger.

By thus gradually unloading the venous system of its half stagnant contents, the heart is enabled to receive and transmit somewhat of its usual quantity of blood, and a chance thereby given to bring about a just balance in the circulation: In attempting this, however, by means of blood-letting, it will be indispensably necessary to discriminate well between different states of the system, for we beleive that in this early stage of disease, the heart has lost nothing scarcely of its energies, but only suffered an interruption to the right performance of its functions. It is in this state *only* that blood-letting is to be used, and the quantity taken should

tion of the heart be below par, and does not keep the arterial system at the due pitch of distension, it is evident the arteries must, by their own powers, go on lessening their diameters, while the balance of blood is thus thrown on the venous system, which is not emptied in due time and degree by the heart. Hence this venous congestion."

be small, and repeated as occasion may require; by this means the active powers of the heart goes on untouched; in fact by thus lessening the press of blood, which exists in the right auricle and corresponding veins, an increased and well directed action will be given to the heart; but if too much blood be taken at once, or too often repeated, the consequence will be that the energies of the heart will then become lessened (which it should be our great object to preserve unimpaired) and we make it a debilitating process.

There is another state of the system to be distinguished from that where blood letting is to be used. When the heart has long struggled in vain to regain its natural action, like other muscles that have been unduly exerted, it must fall into a state of indirect debility; this state we may detect from the very small, and compressible pulse, the lessened action to be felt over the region of the heart, together with the sinking appearance of the whole system, at the same time taking into consideration the violence and duration of the attack; here blood-letting would only tend to reduce the small remains of excitement, and hasten the fatal termination of the case. If any thing can be done in this forlorn state, it must be by the use of stimulants, such as the Vol: Alkali, wine, brandy, &c. and the external application of Turpentine and Cayenne Pepper, this should be used extensively over the surface. In using both depleting and stimulating measures in the first stage of this disease, I would wish to be distinctly understood; in one state of the system I believe the debility to be only apparent, that there exists a latent degree of excitement, which *can be drawn* out and diffused, by depleting means, but if this timely assistance is not rendered, *real* debility will follow, from the long continued and suffocated action, and which then demands the appropriate applications for a state of worn out action.

Although blood-letting was considered as bearing a most important part in the management of this first stage of disease, yet it was not found necessary to resort to it in every case, even of a violent character; in the weakly and delicate, sudorifics aided by external warmth, and stimulating embrocations, were often found to accomplish all that was necessary. Blood-letting was particularly called for, in the plethoric and robust, and those of strong muscular fibre, accustomed to active scenes of life. Where the attack was mild and no great derangement manifest in the circulation, an

early emetic followed by sudorific means, would often cut short the state of oppression, and bring on that of reaction; in extreme cases, however, emetics were not found to answer, it was often impracticable to make them act on the stomach in the way of full vomiting, and even when they did it appeared to be entirely a local operation, without bringing into sympathetic action other parts of the system, for which emetic operations are so often beneficial; the sympathies here between different parts of the body, would appear to be entirely dissolved.

After repeated trials of blisters in this state, they were entirely laid aside from the uncertainty of their operation, and the time required for their effects. The combination of the turpentine and the Cayenne pepper, was found to have a superiority over every other external stimulant; it was prompt in its operation and its effects could be kept up and extended at pleasure; it was often a powerful means of restoring the broken sympathies of the body, and thereby enabling remedial measures to be directed to one part, through the medium of another. In those cases where the nervous system appeared to suffer the first shock from disease, and the attendant pain very severe, laudanum, in combination with the gum camphor and James' powder, was found of the utmost advantage, at the same time that the sweating process, by means of external warmth and the serpentaria was assiduously continued. It was generally observed that those cases, attended by severe pain, were by no means of the most dangerous character, in such there would be less of vascular derangement, and the system could the more easily rise from the first shock which it had received.

From the foregoing account, it will appear that the first stage of this disease was marked by the greatest anomalies, and involved in it, symptoms which lead to the most opposite pathological views, at the same time that its sudden invasion and speedy extinction of life, gave to it a character of the highest malignity. I should have observed, that the blood drawn in the first stage of this disease, did not in a single instance put on the buffy coat, it was always of a dark colour, and would seldom come out in a full stream, but merely trickle down the arm.

Of the management of the state of reaction or excitement I shall say but little, it was an open plain form of febrile action, which required but ordinary means. It was, however,

necessary to keep a watchful eye on its progress ; when this state was fairly established, it became important to attend to the following circumstances :—1st, The degree of arterial excitement then present, and 2dly, whether there existed local determinations, and to what parts ; in a few words then the indications would be to reduce excitement, and take off those determinations, to organs essential to life ; in fulfiling these indications, blood-letting was found indispensably necessary, and its use was often carried to the point of complete relaxation.

The blood drawn in this state would generally have the buffy coat, and the usual cupped surface. After a subdued excitement, blisters would come in very well, and act an important part in extinguishing any remains of local affection.

In the last stage, where there existed a prostration of all the vital powers, the Vol: Alkali, alternated with wine, and the external use of stimulants, were found the best resorts.

In the administration of the Vol: Alkali, I would just observe, that its good effects depends very much on its being given at short intervals, for its stimulant effects are but of short duration, and to obtain its full powers, the impression from one dose should not vanish before another is made.

Opportunities for post mortem examinations were not as great as could have been desired ; in such, however, as were made, from the termination of disease in the *first* stage, the following were the appearances usually found to exist :—The small veins throughout the cerebral mass much engorged ; the longitudinal and lateral sinuses, with the jugular veins, filled with blood of a dark colour ; the right auricle and the two cavas in the same state ; very little blood was found in the pulmonary veins, or left auricle and ventricle. Where death took place in the *second* stage of the disease, it was usually from the functional or structural derangement of some organ essential to life, as the brain or lungs ; in the former, from effusion in the ventricles, or between the dura and pia mater ; in the lungs, the bronchial tubes would be found inflamed, and the mucous membrane so much thickened as to obliterate the canal ; or they would be found in a state of ulceration, with a considerable discharge of pus or sanies. To have entered minutely into a history of all the varying symptoms of this disease, with the reflections and

pathological considerations deducible therefrom, would have occupied more time than is allowable on an occasion of this kind.

ART. III.

A Letter to the Editor *of the* London Medical Repository, *from* Anthony Todd Thomson, *M. D. F. L. S. &c. &c. containing a Case of Irritative Fever, arising from a Scratch received in a Morbid Dissection; with Remarks on the Nature and Treatment of similar Cases.*

Dear Sir,—Whatever may be the cause, the fact is well ascertained, that more Medical Practitioners have suffered from accidents depending upon morbid dissections within these last ten years, than for half a century before the commencement of that period; yet, it is a remarkable circumstance, that, amongst the numbers who have recovered from these accidents, no individual has published his case for the benefit of the Profession. Having lately almost lost my life from an accident of the above-mentioned kind, I shall endeavour to supply the desideratum which I have noticed, by giving you a detailed account of my own case, with a few remarks on the nature and treatment of similar cases.

Early in the month of November last (1824), I was requested to see a lady who had been labouring, for ten days, under a severe inflammatory affection. I found her in a state of extreme danger; and, indeed, so hopeless was the case, that I hesitated to use the lancet, on which alone, however, any prospect of benefit depended; for although she had been previously bled, both topically with leeches and at the arm. yet, the excitement was such that nothing but further depletion promised even a shadow of success. She was, accordingly, bled to the amount of twenty ounces and purged freely; but she died on the following day. I may mention, that the inflammation under which she laboured, when my advice was demanded, was pleuritic; but, as her friends informed me that her head had been previously the seat of the disease,

and it was only when the pain left the head that the pleura became affected, I concluded that the disease was Rheumatism, and that her dissolution was to be attributed to the metastasis which, sometimes, occurs in the acute form of that complaint. It may be proper to mention, also, that the arm in which she had been bled, previously to my seeing her, was painful, much swelled, and displayed all the symptoms of inflammation of the vein ; to relieve which, it had been poulticed and kept cool with an evaporating lotion. She had been delirious during the night before the day in which I saw her ; but, at the time of my visit, she was perfectly collected, and continued so until the moment of her death, which was unattended by any struggle or convulsion. On the second morning, at half past seven o'clock, thirty-two hours after her death, I opened the body.

The stomach, although it was greatly distended with flatus, yet, was perfectly healthy in appearance ; as was the liver, the pancreas, the spleen, and, with the exception of one of the ovaria, every abdominal viscus. The uterus was unimpregnated, and the os tincæ completely pervious ; the right ovarium was rather larger than usual ; and a hydatid, the size of a pea, was appended to it by a kind of ligament. I particularly notice the unimpregnated state of the uterus, because an opinion prevails, that much of the danger arising from the wounds reeeived in morbid dissections depends on something connected with the puerperal state. On opening the thorax, its left cavity was found to contain about a quart of bloody serum. The pleura costalis, from the third to the seventh rib, and from the spine to about the breadth of the hand distant from the sternum, bore evident marks of violent inflammatory action having recently existed, as did also the pleura pulmonum, corresponding to the above-mentioned space : both were covered with a reticulated web of coagulable lymph, but in no place did they adhere. The greater part of the principal lobe of the left division of the lungs was turgid with blood. There were no other appearances indicative of disease in any part of the body.

No accident occurred, either to myself or to the young gentlemen who assisted me, in the dissection ; but, in sewing up the body, having, improvidently, furnished ourselves with curved needles only, I received a slight scratch on the first joint of the fore-finger of the right hand, owing to the needle turning suddenly round whilst I was forcing it through the

integuments of the body. The wound was so slight that I paid no attention to it at the time it occurred; nor was it sufficient to attract my notice until the evening, twelve hours afterwards, when it excited a slight degree of pain and appeared a little inflamed. The pain, however, increased towards bed time; awoke me after I had been asleep two hours only; kept me awake the rest of the night, and was accompanied with very profuse perspiration. In the morning the finger was considerably inflamed, and a small white spot appeared in the centre of the scratch, from which, on opening it with the point of a lancet, I squeezed a globule of pus. The finger was so much relieved after this slight operation, that I regarded the wound unworthy of farther notice; but, during my professional visits in the forenoon, I was attacked with rigors; my strength gradually failed, and my system became evidently under the influence of incipient fever. I, nevertheless, continued my visits, although I was, at length, scarcely able to ascend a stair; and, on returning home at two o'clock in the afternoon, I fainted as I was giving my orders to my assistant; but being laid upon a sofa, I soon revived, and became sensible of the nature of my alarming condition.

Although my mind was weakened by the state of my body, I was sufficiently collected to reflect, that as extreme prostration of strength was the most marked symptom of my attack, the best method of meeting it was to attempt to rouse the nervous energy, and, at the same time, to clear out the bowels: I therefore ordered for myself a mixture containing camphor, ammonia, and wine of colchicum; and had taken two doses of it before my friend Dr. Granville, who had been sent for on the occasion, arrived. I could not convey a more accurate idea of my sensations to the Doctor, than by comparing them to those which are said to result from the bite of a Cobra di capella, or other venomous serpent; or to those which I had once heard described by a person who had taken an overdose of Prussic acid. The debility, besides being excessive, was accompanied by such a feeling as I conceive must attend the approach of death, at the close of a disease of debility. The respiration was laborious, and accompanied by an acute pain under the xiphoid cartilage, extending to a short distance along the sternum; while the pulse was quick, vacillating, and struggling, with occasional hard throbs, "which," to use Dr. Granville's words,

"would have authorised bleeding in the hands of an inexperienced practitioner."

Dr. Granville concurred in the principle which had guided me in prescribing for myself, but disapproved of the colchicum; and, instead of the mixture which I was taking, ordered for me a bolus composed of three grains Camphor and four grains Cayenne pepper; and, as my extremities were cold, the entire surface of the body pale, and the features shrunk and cadaverous, he directed the feet to be bathed in hot water previous to my being conveyed to bed. The prostration of strength was, however, so great, that this could be effected only whilst I remained in the recumbent posture, in which position, also, my clothes were obliged to be taken off. The wounded finger was poulticed.

The bolus, which was repeated, and the pediluvium produced that reaction which was expected, and I obtained some sleep during the night. On the following day the pulse was upwards of 130, but small; the skin hot and dry; and there was some degree of delirium; but these symptoms, as well as the pain under the xiphoid cartilage, which was still felt, although in an inferior degree, in the morning of this day, subsided as the bowels were freely opened, by a Calomel bolus and a brisk purgative, composed of a scruple of jalap and half a dram of supertartrate of potass, which Dr. Granville had prescribed. The pain of the finger, which was now swelled, stiff, and inflamed, was less severe than I anticipated; but it extended up the arm, and was slightly felt in the axilla. An evaporating lotion was substituted for the poultice; and three grains of James's powder were ordered this evening in combination with four of extract of henbane, instead of the Cayenne pepper. I slept better this night; and, by continuing the use of the pills, and maintaining the full action of the bowels for the three following days, I was so much relieved as to be able to sit up for a few hours and to take a little nourishment on the fifth day; and, on the sixth, I considered myself out of all danger. The pain of the finger, which had hitherto given me but little uneasiness, began now to be excruciating; and, notwithstanding the use of warm fomentations and poultices, increased to a degree which was almost insupportable. The seat of pain, however, was not the wounded part; but nearly an inch above it, in the second phalanx of the finger. My friend, Mr. Brodie, saw me late in the evening, in conjunction with Dr.

Granville; and as it was supposed that suppuration had begun under the fascia, it was determined to lay it open by a free incision down to the bone, which was accordingly done by Mr. Brodie; and the hand was afterwards exposed to the influence of the steam of boiling water. Scarcely more pus than was sufficient to cover the point of the lancet was evacuated; but by continuing the steaming, at intervals, for several days, the parts suppurated freely, and my recovery was completed. At the end of ten days I was again able to renew my professional avocations, although some weeks elapsed before the debility in which I was left by the disease was entirely overcome. I ought to mention that the middle finger of my left hand, on which a small morsel of the cuticle close to the nail was separated, forming what is vulgarly termed "a hang nail," became inflamed, suppurated, and cast the nail.

The following corollaries are deduced from the facts connected with the origin and progress of this case:—

1st, It is evident that diseases of an inflammatory nature, affecting the serous membranes, even when *unconnected with the puerperal state*, generate a virus, which continues active for some time after the death of the individual; and is capable, when introduced into the living system by inoculation, of exciting a dangerous degree of irritative fever.

2d, It is probable, however, that a certain predisposition of the body of the dissector may be necessary for the production of this effect.

In my own case, my health was not in the best state at the time of my receiving the scratch, as I had been previously much harassed both in body and mind, by the extent and nature of my professional duties.

3d, That the effect of the introduction of this virus into wounds, or chops, or abrasions of the cuticle of the hands in dissection, is local inflammation and the production of a similar virus in the part, which, being absorbed into the system, diminishes so greatly the nervous energy, as nearly to destroy the action of the heart; and, thence, to produce congestions in the vascular trunks highly detrimental to the powers of life, and which prove not unfrequently fatal.

If these corollaries be correct, two questions of great importance present themselves for consideration:—1st, In what manner, independent of care in avoiding wounds, is the influence of this virus to be guarded against in dissection?

2d, When inoculation has taken place, what plan of treatment is likely to prove most beneficial in overcoming the disease which follows?

In considering the first query, it is obvious, that no description of gloves, nor any coverings for the hands of a similar nature, can be employed by the dissector; but I am of opinion, that the hands, if chopped or abraded, might be protected by rubbing them over with oil. It is a well-known fact, that the oil coolies at Tunis are rendered insusceptible of the contagion of plague owing to their bodies being constantly covered with oil, which can be explained only on the principle of non-contact; and as oil is impermeable by watery fluids, the probability is, that it would secure the chopped or abraded hands of the anatomist, in morbid dissections, on the same principle. But it cannot secure him from being wounded either by the scalpel, the needle, or the edges of fractured or of carious bones, or from the consequent inoculation; and, thence, the necessity of the second query.

The wounds which are received in morbid dissections are seldom deep, and most frequently do not penetrate through the cutis vera. When this is the case, perhaps the most certain mode of preventing the threatened evil would be, instantly, to cut out the portion of wounded skin with a *clean* scalpel, and to encourage a flow of blood by bathing it with warm water. Sometimes, however, scratches are received unconsciously, owing to the attention of the dissector being deeply engaged in the investigation of his subject; and the first notice he receives of the injury is from the local inflammation of the wounded part. It is then too late to have recourse to excision: what mode of treatment, therefore, should be adopted? Were I to reason from my own case only, I might consider it sufficient to refer to the treatment which it details; but the Profession has been instructed, by experience, not to depend upon the result of single cases. If the view, however, which has been given of the nature of the attack be correct—if the first effect of the absorption of the virus be to diminish the nervous energy, and, by thus weakening the moving powers of the blood, to permit congestions in the trunks of the vascular system,—it is evident, that, unless the balance of the circulation be restored, the functions of life cannot be continued. Reaction may take place by the powers of the habit; or the congestion may be removed by bleeding; or it may be overcome by reaction induced by

rousing the nervous system by artificial stimuli, as in the case before us. If we trust to the powers of the habit, it is impossible to calculate upon the consequences: the resulting fever may be sufficient to endanger life; or organic mischief may occur, which would ultimately destroy it; and it is unnecessary, therefore, to reason upon the probable effects of the vis medicatrix in cases of this description. It only remains, therefore, to estimate the comparative advantages of bleeding and of stimuli. The opening a vein in the arm will undoubtedly relieve congestions in the vascular trunks within the thorax and abdomen; but if these congestions have arisen from the nervous energy being diminished, by the introduction into the habit of a virus operating as a powerful sedative, it may be doubtful whether, after they have been thus relieved, the balance of the circulation will be maintained. If the moving power of the vascular system depends on nervous energy, the mere unloading the great vascular trunks, in which the blood has accumulated from the action of the heart being unequal to propel it onwards, owing to a paralysis, as it were, of the nerves, is not likely to restore that power; and, therefore, we must conclude, that the lancet is less sufficient than stimuli, which are calculated to rouse and maintain the nervous energy. The result of the practice which has been generally employed in these cases, might be brought forward to determine the question; but the records of it are too scanty to admit of a satisfactory inference being drawn from it. In my own case, in which there was evidently no injury either to a nerve or a vein, the beneficial effects of the stimulating plan, in the first instance. followed by active purgation, was decisive; and my friend Dr. Granville, to whose skill, judgment, and kind attention, I attribute my recovery, has found it equally so in several cases which have since occurred, and come under his care. It is, at all events, worthy of being tried by the test of experience.

Before closing this communication, I shall mention a curious physiological fact, of which I have hitherto been unable to obtain any satisfactory explanation. The cuticle of the finger, which was scratched in the dissection, having separated owing to the inflammation and the use of the steam-bath, a great increase of sensibility followed; and along with this, an extraordinary *idea of extension* was communicated.—Thus, in touching my hair or my skin, each hair felt like a

rope in magnitude, and the minute and almost invisible fissures of the skin became obvious and highly perceptible to the touch. The increased sensibility is easily explained; but in what manner are we to account for the idea of increased extension?

I remain, dear Sir, your's faithfully,

ANTHONY TODD THOMSON.

ART. IV.

Essay on the causes which demand the Cæsarian Operation. read by appointment, before the Medical Society of South-Carolina, in 1820, *by* W. MICHEL, *M. D.*

Occasio præceps.—*Hipp. Aph.* 1.

Whenever an obstacle renders the passage of the fœtus through the natural way impossible, both mother and child are in imminent danger of losing their lives; if artificial expedients are not resorted to for their relief: the only means which then remains is to open a new channel through which parturition may take place. The incision made for this purpose, is termed Cæsarian operation.

The section practised above the pubis, has been called Abdominal Cæsarian operation; and when the uterus is opened through the vagina, it is denominated Vaginal Cæsarian operation.

History of the Cæsarian Section.—We are unacquainted both with the epoch in which this operation was first performed, and the name of its inventor. Its origin appears to reach the remotest antiquity. Esculapius was taken from his mother's womb through an incision made by Apollonius. Lycas, noticed by Virgil, came into the world in the same manner. The first Kings of Rome enacted a law, prohibiting the burial of any woman who died while pregnant, previous to the extraction of the child by the operation; this was called the royal law, lex regia. Those born thus, obtained the surname of Cæsares or Cæsones: such were Scipio Africanus, Manlius who entered Carthage at the head

of the Roman army, the Consul Cæso Fabius ; and the first of the Cæsarian family : primusque Cæsar a cæso matris utero dictus. Some writers are of opinion that by this expression, Pliny alludes to Julius Cæsar ; but Zonaras and Bayle aver the contrary. We know to a certainty that this operation was only performed at Rome upon dead women ; and Suetonius relates that Aurelia, the mother of Julius Cæsar, was living, when he went to war against Britain.

It was about the beginning of the sixteenth century, that the Cæsarian operation was attempted on a living woman. Gaspar Bauhin* is of opinion, that it was performed for the first time, by an individual named Jack Nufer, a gelder in the village of Siergershensen. His wife Elizabeth Alespachin had been in labour for several days ; after sundry unsuccessful attempts to deliver her, he proposed an operation to which she readily submitted. Having obtained permission from the judge of the place, he laid his wife on a table, made an incision in the abdomen, opened the uterus and extracted the child ; he next joined by means of some sutures, the wound which happily healed. The same woman is said to have been delivered afterwards of two children in the natural way.

This operation, which may be looked upon as miraculous, must have excited more admiration than enthusiasm among the surgeons of that age. Accordingly, Ambrose Parey† who saw it unsuccessfully performed, ridiculed it in the severest manner and forbade its performance.

However, Rousset published in 1581, a treatise on Hysterotomotoky or Cæsarian parturition, in which he strenuously endeavoured to demonstrate by arguments and experience, that the bold expedient of rescuing the child from the womb, which must become its grave, could be successfully performed upon a living woman. This work was a year after translated into Latin, with remarks by Gaspard Bauhin.

A very warm discussion arose in 1590, between Rousset and Marchand, sworn surgeons of Paris. The declamations of the latter, together with some disappointments experienced at that epoch in Hysterotomotoky, occasioned it to be greatly discredited. Guillemeau, Mauriceau, Dionis, Rolfincius, Hoorne and Solingen, violently opposed it, and wished

* Gas ari Bauhini, Appendix ad Roustetum.
† De Hominis Generatione, chapt. 38.

it banished from surgery, denying all the successful facts that had been published. On the other hand, Sennert, Fabricius de Hilden, Fienus, Scultet, Mercurialis, Roonhuysen, Ruleau, Lankisch, Lamotte and several others, attested that it had been successfully performed. Simon, Weidmann, and after them Baudelocque, have collected a great number of observations, whereby the utility of this operation is placed beyond all doubt.

What contributed to the rejection of the Cæsarian section, was a decision from the university of Sorbonne, which declared it unlawful.

Several professors of midwifery, instead of performing this operation, were for destroying the child in the uterus, and extracting it afterwards by piecemeal; grounding their opinion on the following sentence of Tertullian: Atquin et in ipso adhuc utero trucidatur, necessaria crudelitate, quum in exitu obliquus denegat partum, matricida ni moriturus.*

Is the mother's life secured by the sacrifice of the child? Are not operations equally as dangerous as Hysterotomotoky dayly performed? Besides, the destruction of the child is not practicable at all times; this becomes impossible for instance, when the uterus prolapses through the inguinal ring. Must we then wait the death of the mother in order to assist the child? Undoubtedly not; for it is the duty of the surgeon to endeavour to rescue every being intrusted to his care. Therefore, whenever delivery cannot take place in the natural way, let him open an egress to the child, by which it, as well as the mother, may be placed beyond the threatened danger.

An examination into the causes which require the Cæsarian operation.—I. *After the death of the mother.*—It being proved by various observations, that the fœtus can live a short time after the death of the mother, when she falls a victim to an accident or an acute disease, there is reason to hope for the preservation of its life, if its removal is promptly effected.

Physicians are all of opinion that the Cæsarian operation ought to be performed on pregnant women just dead. Whoever therefore, neglects or prevents its performance, is to be looked upon as criminal; for he is certainly guilty of the evil that might have been avoided, and which is occasioned by his opposition. What can be more horrid, than the burying of a living child within the entrails of a corpse! Among the

* Chapt. 13, de Anima.

Romans, this crime was punished with death. Juris consulti eum necis damnant qui gravidam sepelierit, non prius extracto fœtu, quod spem animantis eum gravida peremisse videatur.*

In 1749, Charles, King of the two Sicilies, ordered that any person who should, through cunning, force or carelessness, hinder or retard the Cæsarian operation, thereby endangering the fœtus, should be arraigned as guilty of murder.

Whenever therefore, a pregnant woman is near dying, the accoucheur should prepare every thing required for the operation ; and as soon as she has expired, he should endeavour to extract the child as speedily as possible. Cases in which children have been extracted alive, one or two hours after the mother's death, are too rare to authorize the least delay : This should even be done, when there is no certainty of the child's being alive. Is it not better to open, even without success, a great many women, (as all pain and danger to them is over), than to run the risk of losing a single child, by neglecting the operation, or not performing it in time ?

The advice giving by some, of opening the mother's abdomen, before she expires, seems to me barbarous, and my opinion is against following it ; as after the infliction of much pain, nothing more than a corpse might be obtained.

The characteristic symptoms of a real death make their appearance only some time after it has taken place ; hence, a strong syncope or asphixia, may probably at first induce the belief of its being certain. Peu, the celebrated professor of midwifery in Paris, acknowledges that in performing this operation on a pregnant woman, of whose death he was sure, he perceived his error as soon as the instrument began to penetrate. Although cases of apparent death seldom occur, as circumstances compel us to act immediately, we must conform to the ordinance of the Senate of Venice, which forbids the crucial incision, and orders the operation to be performed in the same manner, and with the same precautions as if the woman was alive.

It is not always necessary to resort to Hysterotomotoky in case of death. Should the cervix uteri be very soft or dilated, the forceps may be employed, or the hand introduced to turn the child and bring it by the feet. On this occasion, I

* Div. 1. xi. t 8.

think it interesting to notice the observation made by Rigodeau, military surgeon of Douai. This accoucheur could not immediately attend to a country woman who sent for him. On his arrival, he was told that she had been dead nearly two hours. He took off her shroud. and finding that the limbs had preserved their natural heat and pliancy, examined her per vaginam and perceived that the membranes were well formed and greatly distended, he therefore determined upon turning the child and bringing it by the feet. Previous to his going back to Douai, he ordered that care should still be taken of her, and obtained a promise from the relations not to bury her until her frame became stiff. "If Mr. Rigodeau was greatly surprised (says Baudelocque) at hearing that the child had revived, far greater was his astonishment, in being informed towards the dawn of that day, that the mother came to life again two hours after he left her." This happened on the 8th of Sept. 1745, and the mother, as well as the child, were living in August, 1748.

From this fact, a conclusion may safely be drawn, that the Cæsarian operation ought not to be resorted to when the organs are favourably disposed for delivery.

II. *Narrowness of the Pelvis.*—We have already remarked that all practitioners agreed upon performing the Cæsarian operation on pregnant women just dead, and that their opinions have been sanctioned by Legislators of different nations; the same has not been the case, when it was contemplated on living women. Sentiments were divided, and several accoucheurs rejected it upon the belief that it always proved fatal.

Even should this opinion be correct, there are still cases in which it ought to be performed; for we would at least have the hope of saving the child, who without it, must perish with the mother. But it is so literally untrue that this operation always proves mortal to the woman; that on the contrary, it is the surest and most indicated means of saving her life, when a too narrow pelvis refuses a passage to the child. We are in possession of facts shewing that some persons have undergone the operation several times; and in our days, M. Baqua performed it twice on the same woman.

Is there any one so prejudiced as to assert that there never existed a pelvis so badly formed, as to render parturition impossible? Such a paradoxical opinion appears too ridiculous to need refutation. It is a truth unfortunately too well

authenticated, that there are women whose pelvis is not more than two inches and a quarter, one inch and a half and even six lines in the antero-posterior diameter. How then can a child's head, whose smallest diameter is three and a half inches, pass through it ?

Heister thinks, that it would be better to use the crotchet, than to perform the Cæsarian operation. This advice is contrary to the principles of humanity, and our beneficent art : Why sacrifice one of the individuals, when both may be saved ? When we consider the difficulty of using instruments within a pelvis, where the hand cannot be introduced ; it is easy to perceive that the operator is obliged to act at random ; that the repeated tractions made to hook and lacerate the child, and the consequent efforts in dragging out broken pointed bones, must occasion contusions, wounds and lacerations of the uterus, and plunge the mother in the greatest danger. I have seen this operation performed several times, by the most distinguish gentlemen, and the women died immediately after. On two occasions, I assisted in extracting the fœtus by peace meal, and the women sunk under it a few hours after : in one of these cases, the intestines protruded through the uterus, and presented themselves before the fragments to be extracted ; and in the other, the vagina and the fundus of the uterus were unaccountably torn.

From these expedients, such terrible consequences ensue, that it is preferable, even when there is a certainty of the fœtus being dead, to extract it by means of the Cæsarian section. As soon as the necessity of this operation is well ascertained, it must be undertaken at the commencement of labour, without waiting, according to Gardien, until the contractions have been sufficiently great to effect the expulsion in the natural way ; for in that case, the woman being fatigued and the uterus irritated and strongly adherent to the fœtus, would add to the difficulty of the operation : besides, should we wait too long, the excruciating pains, convulsions, and even rupture of the uterus which might occur, would endanger the patient and render useless all professional assistance, from its having been given too late.

Some partisans of symphyseotomy,exagerating the advantages of that operation, have urged, that it should be substituted on all occasions for Hysterotomotoky; but practitioners who have examined this subject with a higher degree of penetration, are well convinced of the contrary. They are of

opinion, that nothing favourable can be expected from the section of the symphysis, whenever the extent of the antero-posterior diameter is not two and a half inches at least; because it would require a very considerable seperation of the ossa pubis, and the distention of the ligaments would bring on fatal consequences.

We are not to place any reliance in the regimen which has been proposed as a remedy for the vicious conformation of the pelvis. We behold every day females, who have been brought up in the lap of comfort and plenty, bringing forth emaciated, valetudinarian children, while many unfortunate women, whose extreme poverty allows them but a small quantity of coarse food, are delivered of very fat and hearty offsprings. We may therefore safely infer from this fact, that the strength and size of children, are not in proportion to the quantity and quality of nourishment taken by the mother.

A premature labour is not more advantageous than the regimen. "How can we ascertain," says Capuron, "the epoch when premature delivery is to be solicited, since the head admitting of no measurement, while in the uterus, renders the knowledge of an exact proportion between it and the pelvis, totally impossible." Moreover, the premature labour actually under discussion, being the result of artificial and forced expedients; we could not of course expect the consequences attending a natural delivery, which might take place at the seventh or eight month, or even sooner, after which, children have continued to live. Finally, we cannot dissemble the evils and dangers which threaten a woman, whose uterus is compelled harshly to commence and terminate the act of delivery, which nature has intended to be gradually accomplished. Consequntly a premature labour is not much less to be dreaded that the Cæsarian section.*

III. *Exostosis.*—It may happen that a woman who has been delivered of one or more living children without any difficulty in the natural way, may eventually find it impossi-

* Since the writing of this essay, Dr. Ramsbotham's practical observations in midwifery have furnished me with additional and convincing proofs of the insufficiency and danger of such means. Of two observations given of the same woman who laboured under a slight degree of mal conformation of the pelvis and where premature labour had been twice excited in order to obviate the defect; the first proved fatal to the child, and in the second, rupture of the uterus took place, and both mother and child perished. If such are the consequences of the premature delivery, even when the pelvis is not so badly formed as to prevent the introduction of the hand, (as was here the case) what can we expect when this cannot be effected?

ble in a subsequent labour, on account of the formation of some large exostosis in the pelvis, as we have some examples on record.

Severin Pineau found a very large eminence on the right side of the ossa pubis in a woman who had died undelivered. Lassus also reports having found within a corpse, two elongations in the form of the styloid processes, each three inches long, a little curved at their points and situated on the internal surface of the ossa pubis near the symphysis. In similar cases, the Cæsarian operation is the sole expedient to which we should resort. It is very probable that, had it been performed on the woman mentioned by Gardien, she might have been saved.

Exostosis of a small size, are not always an impediment to delivery, for the head of the child has been seen to mould itself agreeably to these bony tumours and pass through the pelvis. I recollect to have heard M. Danyau mention in his lectures in Paris, that having been called upon to attend a case of protracted labour, he found the woman delivered, on his arrival to her house. One side of the child's head was considerably depressed; and a portion of the parietal bone bent in by an exostosis situated on the mother's sacrum. An accoucheur who came in a moment after, thought that the depression had been occasioned by one of the blades of the forceps; and was greatly surprised, when told, that no such instrument had been used.

IV. *Narrowness and occlusion of the Vagina.*—From the vicious conformation of the soft parts, obstacles may arise to parturition; but it very seldom happens that the norrowness of the vagina which exists from birth, or is occasioned by ulcerations and carcinomatous scars, requires the Cœsarian section. However, Vaterus affirms that he performed it on a woman in whose vagina he found such a number of callosities produced by an ulcer, that the finger could scarcely be introduced. Ledoc and Gauthier resorted to the same operation, in July 1754, in consequence of a hard, scirrhous like and very thick ring in the vagina, which rendered it so contracted, as not to admit the finger but with very great pain.

The vagina is endowed with such a degree of elasticity, that notwithstanding its extreme narrowness, we have reason to hope for a sufficient dilatation at the moment of delivery, as was the case with the young women noticed by the

French Academy of Sciences; and the lady whose history has been handed to us by Harvey.

The hardness and callosity of an old scar, do not always offer insurmountable difficulties. Should no expansion take place, a speculum may be used and the stricture divided according to Guillemau, or the collosities extirpated as did Lamotte.

When the vagina is entirely closed, either by the adhesion of its sides, or by membranous productions, incisions ought to be made to allow the passage of the fœtus.

V. *Scirrhus, Cancer and Occlusion of the Neck of the Uterus.*—The neck of the uterus may acquire such a degree of hardness that its expansion becomes totally impossible, but before Hysterotomotoky is undertaken, we must be perfectly satisfied that dilatation cannot take place. This case requires the greatest circumspection; as it has often been observed, that women who at first appeared incapable of delivery without assistance, finally brought forth their children by the sole efforts of nature. In conformation of this, I shall relate a case which from the condition in which I found the neck of the uterus lead me to a mournful prognostic, but which terminated happily. Mrs. A— G—, aged thirty, had been three times brought to bed with great difficulty, and all her children had been still-born. She was in the seventh month of her fourth pregnancy, when on the night of the 10th of April, 1815, the membranes ruptured and the waters were discharged. On the morning of the 11th I found her free from pain, the neck of the uterus had retained its whole length, and the circumference of its orifice presented three very prominent and hard tubercles seperated by narrow furrows which prevented the introduction of the finger in the os tincœ. On examining the abdomen, I found the uterus to have more extension transversally than longitudinally.

During the following day, the 12th, nothing occurred except the dribbling of about half a pint of the liquor amni, tinged with blood. Having requested the opinion of an experienced professional friend, he advised to wait longer, as his belief was that dilatation might take place with time. At nine in the evening, slight pains were felt; two hours after the neck of the uterus became soft and a little dilated, when I discovered the presentation of the right shoulder. The pains continued the whole night, and at four o'clock in the

morning, the 13th, the tubercles entirely disappeared ; at seven the neck was sufficiently dilated to allow the introduction of the hand, I looked for the feet and extracted the child who lived three quarters of an hour, the mother recovered.

The following is a communication of Levret to Simon :— "A woman of thirty-five years of age, who had been several times confined with ease, had a sanious flux occasioned by a carcinomatous ulcer of the neck of the uterus ; she became pregnant and was brought to bed at eight months. The labour pains lasted six days in consequence of the hardness of the neck of the uterus, which at last gave way on the seventh, and she was delivered of a dead child." In such cases should nature be totally insufficient to effect the expansion of the neck of the uterus. it must be divided. Dr. Simson had occasion to make several incisions in the circumference of the neck of the uterus, which formed a cartilaginous ring ; not a drop of blood appeared, and the patient felt no pain. This gentleman assures us, that the death of this woman which took place twenty-four hours after delivery, was occasioned by a violent pain in the side, and an acute fever in consequence of hard drinking.

Baudelocque has recorded a case which was communicated to the French Surgical Academy by Dubosq. The woman had been in convulsions for two days ; and the circumference of the orifice dilated to the size of a dollar, appeared callous : an incision was made, the woman delivered of a dead child, and recovered.

A lady who had a cancer of the uterus became pregnant. At the beginning of labour she sent for an accoucheur, who upon examination, found the neck of the uterus hard, thick, ulcerated and a little dilated ; the waters had been discharged from the commencement, and the umbilical cord protruded through the orifice. Baudelocque and Professor Dubois were called in consultation ; the former proposed the incision of the uterus : it was not done, because the latter observed that no pulsation was felt in the funis, that the woman was extremely weak ; and consequently the operation could not be of any benefit to either individual : the next day, the neck became a little more expanded, and delivery ensued. The child was putrefied, with its head lengthened, as if it had gone through a narrow mould. The mother survived but a few days.

A great obliquity of the uterus may require the vaginal

Cœsarian operation agreeable to several examples furnished us by Baudelocque. Mr. Henance performed it in a case of complete prolapsus of the uterus, which took place during labour.

Finally, as there are examples on record of the neck of the uterus being found entirely shut up; it is evident, that such cases cannot be remedied but by Hysterotomotoky. Lauverjat, who met with a case of this nature, in the course of his practice, performed this operation with the greatest success.

VI. *Steatomatous Tumours.*—Fabricius Hildenus, Amand, Bartholin and Baudelocque, have met with steatomatous tumours which filled the cavity of the pelvis. A case of this kind came under my notice, while in Paris, the tumour was of such a size, that delivery could not take place; it was effected by means of the hook.

Whenever these tumours are large at their basis and adhere, either to the uterus, the bladder or the anterior part of the sacrum; it is better to perform the Cœsarian operation, than to attempt their extirpation; but when they are within the vagina, they may sometimes be removed. This was most successfully done by Soumain.

We find in the clinics of Professor Pelletan an account given of a tumour which became engaged in the pelvis with the head of the child; the accoucheur succeeded in pushing it above the superior strait and delivery ended in the natural way.

VII. *Hysterocele.*—A few instances of hernia of the uterus are on record. Professor Lallement published one a few years ago. The woman, who is the subject of his observation, had had several children, and since her last confinement had carried a tumour in her groin. By introducing a finger in the vagina, it was found to be of an uncommon obliquity, the neck of the uterus and the superior part of the vagina could not be discovered. Subsequent to this, the same gentleman had occasion to notice another hysterocele.

Rousset reports that a woman who had been operated on for a hernia inquinalis, became pregnant shortly after, and the uterus projected through the rupture. Unwilling to submit to a second operation, she kept up the tumour with a bandage and was happily delivered.

Ruisch mentions a far more extraordinary case: the uterus hung down to the knees, the midwife succeeded in reduc-

ing it, and parturition took place solely by the efforts of nature.

From the foregoing statements, I am induced to believe that the above mentioned woman must have had extraordinary ruptures, as the opening through which the organ escaped, was sufficiently large to admit of its reduction, notwithstanding its magnitude. Circumstances did not prove equally favourable to the two women mentioned by Sennert.

A poor woman of Yssa in Silesia, who was pregnant, perceived that she had a tumour in her left groin, which encreased until it reached her knees On examination, it was found to be the uterus containing a child. The Senate of Yssa assembled the physicians and surgeons who decided that the tumour should be opened as soon as labour began. The woman died in consequence of the operation. This case is taken from Doringius, Epist ad Fabricium.

Sennert attended a cooper's wife, who in curving a hoop occasioned a hernia of the gravid uterus, the motion of the child could easily be felt. She was obliged to keep up the tumour, by means of a bandage fastened on her shoulders. She died twenty days after the operation, and the child lived nine years.

VIII. *Extra Uterine Pregnancy.*—Extra uterine pregnancy seldom reaches the full period of gestation : the fallopian tube commonly breaks towards the third or fourth month, and the fœtus falls into the abdomen. Haller mentions a solitary case, in which an extra uterine pregnancy came to maturity ; but gives no details of it. M. Leroux, of Dijon, speaks of another that was communicated to him by M. Marchand, but brings to light none of its circumstances.

When the fœtus passes into the abdomen, dries up or becomes of an adipocirous substance, the mother may enjoy her health for a long time, but if it putrefies she soon feels distressing consequences. The surrounding parts, soaked by a sanious ichor, become inflamed and ulcerated ; abscesses are formed, and decayed fragments of the fœtus are discharged, as in the cases reported by Camerarius, Santorini, Abraham Cyprianus, Littre, &c. In latter days, Professor Beclard and M. Danyau had occasion to extract a putrefied fœtus through the recturm.

In cases of extra uterine pregnancy, surgeons are kept back by the apprehension of hemorrhage ; " For in my opi-

nion," says Levret, "the operation will prove fatal on account of the hemorrhage which must necessarily take place, when the placenta is seperated from the spot to which it adheres; since no part of the abdominal cavity has the power of quickly contracting itself to that degree peculiar to the uterus."

Some practitioners have advisied, after the extraction of the fœtus, to keep the umbilical cord at the orifice of the wound, and let the placenta remain until it is detached and makes its appearance at the opening.

IX. *Rupture of the Uterus.*—When in the act of expelling the produce of conception, the uterus is ruptured, and the fœtus passes entirely into the cavity of the abdomen; both mother and child are in imminent danger of losing their lives, if the Cæsarian operation is not immediately performed.

If the preservation of the child was the object of our exclusive attention, there is no doubt but that the necessity of promptly operating would be imperious; but the mother is no less the subject of our most earnest solicitude. Consequently it has been a question, whether it would not be more advantageous for her to delay the operation until the first accidents have disappeared, and the secondary ones have pointed out the intention of nature as to the spot where it should be performed.

Should the woman muster sufficient resolution to submit without delay to the operation, our duty imperiously bids its performance; for we are informed by Mauriceau, Guillemeau, Dionis, &c. that without it she must perish. It is true that some observations bring to our notice, women who have lived a long time without sinking under it; but their remaining days were passed in struggling with accidents which brought them slowly to their grave. Indeed if some have recovered, it must have been by the aid of analogous operations.

Danger does not threaten those alone, whose children have escaped entirely into the abdomen; for some who after the rupture of the uterus, were delivered in the natural way, did not survive the accident. Guillemeau witnessed the death of a woman on the same day of the rupture, Peu on the eighth: and Deleurye fifteen hours after.*

* When we come to consider that almost all the cases reported of rupture of the uterus where only a part of the child has escaped through the wound, and delivery effected per vias naturales, have terminated fatally, we cannot help feeling the justness of Dr.

We know of no example of the child's drying up in the abdomen after the rupture of the uterus as is frequently observed in extra uterine pregnancy ; for this reason, it is attended with far greater danger. Shall we then wait until nature has formed abscesses indicating the spot where the operation is to be performed ? May we not stop and prevent all evil consequences by acting immediately ? Experience answers that we must not be deterred by the apprehension of adding to the danger of the case, that such fears are chimerical, and that a speedy interference of art is the sole means of safety for the mother as well as for the child.

In 1782, Chevreuil communicated to the Surgical Academy of Paris, the case of a woman who expired twenty-four hours after Gastrotomy. It was believed that she would have died before or during the operation ; but after the extraction of the child, the accidents of the rupture were so mild, as to allow the patient some moments of rest ; and hopes were for sometime entertained of her recovery. On the 5th October, 1767, Thibaud Desbois performed the same operation on the wife of a notary public of Mans : no accident happened, and the cure was completed in a fortnight. Lambron had occasion to operate twice on the wife of a gardner : the first time in August, 1775, eighteen hours after the rupture ; and the second, in December, 1779. Two years after, this woman was delivered of a child in the natural way.*

Dumay, a surgeon in Fontenay-le-Comte, resorted once to the operation, although the child had not entirely escaped into the abdomen, and on the thirtieth day, the wound was not larger than a sixpence.

Grantz advises, in cases of rupture, when the head alone has passed into the abdomen, to perform Gastrotomy, and to

Ramsbotham's suggestion in his invaluable work on midwifery. This gentleman, after experiencing the ineffectual resource of delivery in the natural way, either with the hand or by the use of instruments in six different cases, which proved fatal to both mother and child, very properly concludes with the following remark :—" As the number of women who have ultimately recovered from this accident, is at the present so trifling, and as the occurrence is in itself almost necessarily fatal to the mother, it may be a question worthy the consideration of the profession, whether the Cæsarian section offering a mode of freeing the mother from the child, with a chance of its life, ought not occasionally to be substituted to the perforation of the head." As a moral question it ought, even oftener than occasionally. For, as we have already said, why sacrifice one of the individuals when both may be saved ?

* M. Louis Frank, Physician of the Archduchess Maria Louisa, sent to the Royal Academy of Paris, on the 10th March, 1825, an observation concerning the operation of Gastrotomy, which was successfully performed in consequence of a rupture of the uterus.—*Arch. Gen. de Med. Mars* 1825.

endeavour to effect delivery in the natural way when it is any other part of the fœtus.

The foregoing cases concur to prove that the Cæsarian operation is often attended with success. We must not therefore remain inactive from doubts of the event. Were we actuated only by certainty of success, how could we venture on the operations of Lithotomy, Bubonocele, &c. &c.

Conclusion—The Abdominal Cæsarian operation, though terrible, must be performed in some cases, which fortunately seldom occur. 1st. After the woman's death, when the neck of the uterus is not sufficiently dilated to allow delivery in the natural way. 2d. When the woman is alive and the pelvis is naturally deformed, or rendered too narrow by the presence of bony or steatomatous tumours. 3d. In cases of irreducible Hysterocele. 4th. In cases of extra uterine pregnancy 5th. After the rupture of the uterus, when the child has escaped entirely into the cavity of the abdomen. The accoucheur who, through timidity, refuses or prevents the performance of the operation, particularly when the woman requests it, as did the two unfortunate ones mentioned by Fabricius Hildanus and Saviard, deserves to be arraigned as guilty of barbarity. He who devotes himself to this life preserving art, ought to omit nothing of what may tend to the preservation of those intrusted to his care. How could we, therefore, in time of such imminent danger, withhold succour from the unfortunate women we are speaking of. We are not to be checked by the fear of our assistance being unavailing. Whoever employs, even unsuccessfully, all the resources of the profession has nothing to reproach himself with, he feels within his own conscience, the consolation of having done his duty; and thus attains a station above the reach of calumny. Conscia mens recti famæ mendacia ridet.

ART. V.

Case of Menstruation from the Mammæ : by S. B. R. FINLEY, *M. D.*

On Monday, 16th August, 1825, I was requested to visit a female slave, the property of a lady of this city, the circumstances of whose case were as follows. Sometime during the Spring, her menstruation ceased, as she then supposed finally, being, as far as she was able to discover, between 44 or 5 years of age. However, after the omission of one month, at the next regular period, a discharge appeared from the nipples, sometimes apparently of pure blood, at others mingled with matter. There was not the slightest degree of pain attending, except at the periodical returns of this discharge, which she described as resembling in every respect, the pains she had formerly experienced in her menstrual efforts.—About this period she was attacked with a bloody discharge per anum, but does not recollect whether it suspended that from the nipples.

When I first saw her, she complained of considerable debility, the pulse being slow and wanting vigour. She felt also pain in the right side extending to the shoulder and arm of the same side ; her bowels were slightly irregular ; to correct this I ordered her a laxative doze to be followed up by some subtonic medicines. At this time the bloody discharge was upon her, and from the appearances upon her linen, as far as I could judge, exactly similar to those of the menstrual flux.

The following day I again saw her, when the previous discharge had ceased, leaving behind a thin watery fluid, which slightly discoloured her clothes. Nothing further was observed at this time, but a slight moveable tumor at the lower part of the sternum, which she said had been there previous to the present attack, and was much diminished in size. It evidently, however, had no connection with this affection.

This situation of affairs excited some doubt in my mind as to the nature of the disease and the course of treatment to be pursued, but after advising with several of my medical

friends and consulting several authors, I came to the conclusion that it was a metastasis of disease or translation of the menstrual discharge from its seat in the uterus to the mammæ As to the treatment necessary to be pursued, I still remained somewhat in uncertainty, but after due reflection, finally determined to leave nature to perform her own cure, as from her age. I considered that the menses were near the period of their final cessation: that although slightly inconvenient, they should rather be allowed to cease in this situation, than by an officious interference with nature interrupt her course and cause an affection of the more vital organs, as the lungs, liver, &c. and by keeping the patient constantly under my inspection, watch symptoms as they may arise, and if dangerous apply proper correctives.

I have frequently seen the patient since, and have no reason to be dissatisfied with my decision, as her general health is as good as it ever was, although the discharge still periodically returns. She lately informed me that in the intervening spaces, the above mentioned watery discharge also continues.

I therefore submit the case to you as one interesting and of rare occurrenee, and would feel highly gratified if any of the professional gentlemen of this city could give any further information upon the subject.

ART. VI.

REVIEW.—*Report made to the Institute of France on the the 22d of March*, 1824, *by Baron Percy and Chev. Chaussier, on a Memoir presented by M. Civiale, M. D. of the Faculty of Paris: entitled a new method of Destroying the Stone in the bladder, without the operation of Lithotomy; translated from the French, by* R. La Roche, *M. D. Philadelphia*, 1824; *pp.* 38.

This might well be called the age of projection as well as improvement. So many things new have been presented to

the world, of which many as the force of steam for instance, have been of incalculable advantage, that a voyage of discovery is pursued in every department of knowledge. The periodicals of the day teem with novelties and inventions, many of which however, upon minute inspection, are discovered to be old things dressed in a new fashion. We admire this spirit but we could wish that those who seek an acquaintance with what is going on, would arm themselves with a little scepticism, and wait until time and experiment, the true tests of the value of all projections, should confirm or destroy them. This is especially necessary, as regards the medical profession. The field with us, the human constitution, is wide and extensive, and this latitude often gives rise to conceits and suppositions which are, upon mature consideration, found too often inconclusive and unsatisfactory. Particular views and practises are often adopted according to peculiar circumstances, which may be useful in particular cases, but be found by no means calculated for general purposes. But to the object of our review.

It may not be uninteresting to take a rapid glance at the principal operations proposed and practised for stone, before entering on the merits of M. Civiale.

The first account of this operation is given by Celsus and is called *Lithothomia Celsiana.* The method was to introduce the finger in the anus, press the stone forward towards the neck of the bladder, while the abdomen was pressed with the other hand, under the impression that the stone would be made to descend. The projected stone being grasped by the hand in the anus, was retained there, and was protruded to the side of the perinæum. An incision was made through the skin and cellular substance down to the stone ; a transverse incision was then made, and the stone drawn out by a hook made for that purpose. This was likewise denominated the cutting on the gripe, or apparatus minor. Many objections were offered to this plan. The principal of which are from the impossibility of always retaining the stone in a proper direction, the uncertainty of our cutting and the unnecessary injury which might be done to the urethra vesiculæ seminales or prostate gland. To obviate this inconvenience, Fabricius Hildanus introduced a staff into the urethra, and cut upon it, when he afterwards enlarged the wound according to circumstances. This practice got into disrepute, on account of the simplicity of the apparatus and

the assumption that it would be dangerous in ignorant hands, an argument well adapted to the mystical and avaricious age in which it was advanced.

This operation was superseded by what has been denominated the apparatus major, so called from the number of instruments used. The plan was as follows, as described by Mr. John Bell :—

"The operator leaning on one knee, made an incision with his razor along the prerinæum, on one side of the raphe, and feeling with his little finger for the curve of the staff, he opened the membranous part of the urethra, and fixing the point of the knife in the groove of the staff, gave it to an assistant to hold while he pressed a probe along the knife into the groove of the staff, and thus into the bladder. The urine now flowed out and the staff was withdrawn.—The operator next took two conductors, a sort of strong iron probes, one named the female conductor, having in it a groove like one of our common directors; the other the male conductor, having a probe point corresponding with that groove. The groove, or female conductor, being introduced along the probe into the bladder, the probe was withdrawn and the male conductor passed along the groove of the female one into the bladder. Then commenced the operation of dilating. The lithotomist took a conductor in each hand and by making their shafts diverge dilated, or in plain language, tore open the prostate gland." This barbarous method of tearing through soft parts, under the impression that it was less injurious than a free incision could not long be in use. The mortality alone resulting from it would destroy its character.

This operation was promulgated to the world as the invention of Johannes de Romanis, by Marianus Sanctus, in 1524.

In the same century another operation was suggested and performed, which now, in particular cases. is preferred to all other operations. This has been denominated the high operation.

The first method was to inject a quantity of fluid, through a catheter introduced into the urethra, into the bladder, so that it may be distended beyond the symphysis pubes. The catheter was then withdrawn and the glans penis held tight by an assistant to prevent the reflux of the fluid. An incision was then made between the recti and

pryramidala muscles, down to the bladder, a crooked knife was then introduced and an incision made into the bladder. The finger was then introduced with the forceps, into the bladder, the stone grasped and extracted. This operation has advantages, and particularly one of being easier in its execution and more successful where the calculus is of a large size.

It has been objected that a calculus of long standing, by its irritation, would produce a thickening and contraction of the bladder, whereby it could not be distended beyond the symphysis pubes. In such a case no surgeon of any judgment or common sense would presume to operate in this manner, although such cases are comparatively of rare occurrence.

It has likewise been objected that in small calculi, or the breaking of large ones, it will be difficult to take away all the fragments and consequently a neuclus will be formed for a stone, and that an infiltration of urine is likely to take place between the cellular membrane, the stagnation of which will produce gangrene. Several modifications of this operation have been put in practise. Frere Come recommended and practised the following method which he thought would obviate the unpleasant consequences which would result from a distension of the bladder by a fluid. He introduced into the urethra a staff; an incision was then made into the perinæum in the line of the staff. The membranous portion of the urethra was then opened, as far as the prostate gland. A deeply grooved director was then introduced and the staff withdrawn. A "sonde darde," or species of catheter, armed with a stilette, was introduced into the bladder along the director, which was withdrawn. An incision having been made above the pubes as in the other operation. The assistant kept back the peritoneum, while another operator pushed forward the "sonde darde," and elevated the bladder, which having been protruded, the concealed stilette was pushed forward and made to pass through the bladder. The wound was then enlarged with a bistoury according to circumstances. Here was what may be denominated an innovation, emanating from a vanity of being called an inventor! A double and complicated operation is performed! where not only the bladder but the urethra is opened and without any very evident benefit. But he was not the only modifier. Deschamps was another, he made his incision

through the rectum into the bladder, and performed likewise the high operation. "Of the two plans," says Mr. Cooper, "that devised by Come is unquestionably the best." It might have been more appropriate to say that of Deschamps was certainly the worst. for neither of them are in any manner entitled to the appellations, good, better or best.

Many other modifications have been proposed to suit the convenience and fancy of surgeons. The one, however, by Sir Everard Home, deserves some notice. In place of making what is certainly an unnecessary wound, as in Comes and Deschamp's operations in the urethra, or rectum and bladder, he introduced the catheter into the urethra, and pressed the fundus of the bladder beyond the symphysis.—He then cut on the projected point, as in the case of Comes. In the termination of the operation, however, he introduced a long rag as a syphon into the wound, to prevent infiltration In avoiding one evil. however, Sir E falls into anotner, for the positive irritation from a foreign body thus introduced, must be much worse than the chance of infiltration.

In all these different experiments and suggestions regarding the high operation, it is very questionable if the one originally proposed is not the best, and the greatest real objection to it is its being old fashioned, or in other terms antiquated.

The next plan of operating for stone is that which is now most frequently in vogue, and which has been denominated the lateral operation. Tae inventor of this was Franco. There are, as our readers well know, a variety of opinions regarding the particular method of performing this operation. Mr Bell and some others, preferring the use of the scalpel, and the generality of surgeons, the gorget. To give the particulars of an operation which is so generally adopted, and which is described in every elementary work of surgery, would be a useless waste of time.

We have thus given a hasty glance at the different methods proposed for operating for stone. If we were to detail, however,all the modifications which have been offered, we would occupy more space than we could allot, or our readers patiently endure. The recital would however, have this use, it would evince how fond men are of being thought original.

We must apologize for this tax upon our reader's time, and come to the consideration of the work under review.

It appears that M. Civiale having proposed his operation to the Institute, a committee composed of Baron Percy and Chev. Chaussier, were appointed to investigate the matter, which report forms the head of this article. We will follow them in their remarks.

These gentlemen in making their report to the Institute, take a rapid glance at the various means which were proposed to obviate the terrible operations of Lithotomy. It is curious to observe the credulity of men especially when labouring under terrible maladies which can be only relieved by terrible remedies. This it is which has given rise to the swarms of infamous pretenders and empyrics, which have (and still continue) to infest mankind. The Egyptians drank of the holy water of the Nile :

" Apprized, however, by fatal experience, that this water is inefficacious against the stone, they submitted to another set of curers, whose proceedings, unattended with the loss of blood, presented nothing frightful or painful.

" The proceedings consisted in passing into the urethra a tube of ivory or wood, of more or less length and thickness, the orifice of which they shut and opened at will, and through which they introduced, gradually, air into the bladder. Having previously, by the anus, pushed the stone towards the neck of the bladder, they forced the air to escape quickly from this viscus, either by compressing or striking the hypogastrium ; and when the calculus was once engaged in the entrance or course of the canal, (which they had enlarged by means of the same insufflation,) they drew it forward, most generally by means of a powerful suction, and sometimes with the aid of some instruments, or of an appropriate manipulation.

" Such was the method employed so late as the days of Prosper Alpinus, who relates that he saw an Arab, of the name of Haly, cure in this way the Turkish commandant Horam Bey ; and a short time afterwards two Israelites, from the younger of whom he extracted, with the greatest facility, eight stones of certain magnitude."

This operation is still performed in some parts of Egypt, according to the authority of Roveretti, Desgenettes,and Larrey. The Romans would not consent to operations of any kind for stone. The cabbage of Cato was considered a famous remedy, and opiates, ptisans and other palliatives were us ed. Archagatus it appears, was banished from the Roman

territory, for proposing an operation. In course of time, however, operations were introduced by the Greeks, the description of which was given by Celsus, and obtained his name very unjustly.

Throughout all Europe, during the barbarous ages, medicine and surgery were scarcely more than a tissue of deceits and presumption. Thousands of remedies for all diseases were promulgated and became alternately in vogue, of which those who suffered from the stone, had their share. The priests were then the most learned, or rather the least ignorant, and every thing appertaining to knowledge was engrossed by them and bore the imposing aspect of mysticism. Absurdities and false statements under such circumstances was natural to be expected, and it is well known that until the sixteenth century, one part of Europe was occupied with metaphysical quibbles, involving no knowledge of facts, or in other words, were engaged in a war of words, while the other half were engaged in more bloody warfare.

Among the remedies in these days mostly in vogue were chemical ones, which were to dissolve the stone, as well as obviate, as in modern times, it is said the preponderating of those constituent principles which, when they come into the sphere of action, unite forming calculi. The progress of chemistry has given a more definite view of these remedies and the philanthropist fondly hoped that the much wished for "kalon" might be obtained. Fourcroy especially was anxious to obviate this dreadful scourge, but was ineffectual like those who preceded him. Mineral waters throughout Europe, became alternately in repute, until they were found like all other lithontriptics nugatory.

We come now to the especial object of the report of the committee on M. Civiale's operation.

The plan of M. Civiale is to break down the stone in the bladder, into powder, and suffer the patient to pass it with his urine. For this purpose the following plan is pursued He first introduces a straight sound into the bladder, according to our reporters the most difficult and embarassing step in the operation ; he next introduces into this sound another sound : "but one of steel—which can enter the former—straight and hollow like it, and terminating by three branches, very elastic, curved, and remaining closed and hidden so long as they continue in the principal sound, which performs the office of their sheath. When pushed out, they

open by virtue of their elasticity, and form a kind of cage or steel purse; in which the stone is sooner or later made to enter, and which is immediately shut upon it, in pulling the sound backward, as far as the volume of the extraneous body, or the direction in which it has entered, will allow.

"In the second sound. or rather in the cylinder forming the forceps, there is contained a long steele stilet, which enters and turns in it with ease, and is terminated at the end towards the bladder,and between the branches of the forceps, by a file, made in form of a strawberry, or by a small circular saw—a pyramidal trephine, according to circumstances, size, and supposed nature of the stone. This latter being firmly fixed, the moveable stilet is pushed towards it, and by means of a pulley with which it is provided at its exterior extremity ; of a whirl on which it is mounted, and of a long bow with a catgut string, it is made to turn, in a manner similar to that resorted to when we wish to bore a hole through a plate of metal. No sooner is the machine in operation, than the hollow or sonorous sound of the breaking or grinding performed on the stone, according to its softness or hardness, is heard ; and the patient suffers little or no pain.

"As the work progresses, the stilet is made to advance in the same proportion towards the stone ; and this is done by suspending for a moment the action of the bow,which is soon resumed, in order to pulverize more and more the stony concretion ; and, if the operator or patient is not too much fatigued, to hasten its destruction ; but as it is intended to accomplish this in two or three operations, it is postponed to periods more or less distant. A spontaneous discharge of urine, or an injection of warm water into the bladder, usually terminates the operation, and causes to pass by the urethra, now dilated by the large sound, fragments of the stone, more or less numerous or considerable, or a muddy sediment, which soon precipitates and is easily collected."

These gentlemen state that in the course of the trials, during the pulverization of the stone, the bladder was beyond the reach of any bruise from the instrument. Several cases are detailed as having been operated on which were relieved without any untoward circumstance. Time must prove, however, whether the cure will be permanent. We will quote one more passage from this report :

"But however promising the facts may be which we have just related, it must not be believed that the result will *inva-*

riably be so favourable. It will soon be seen that in addition to the temerity that would be shown in anticipating constant and unchecked success, there are cases in which the lithontriptic instruments can neither be applied nor fulfil the objects of their application. For example, if a stone has dimensions extraordinary, and not proportioned to the development of the pincers destined to seize it, it will readily be conceived that under these circumstances, which fortunately are only met with at long intervals, it would be necessary to renounce the lithontriptic method, and have recourse to the high operation. It will also be ineffectual in cases of adhering and encysted stones, which also are fortunately very seldom met, and owing to their adhesiveness and immobility, cause much less pain, and are a longer time supportable than free calculi, the only kind that are capable of being seized and destroyed by the instruments of Mr. Civiale.

"Stones having for nucleus a large metallic needle—a tooth-pick—an ear pick of gold, ivory, bone, or whale-bone—a steel awl—a piece of pipe of horn or iron—a leaden bullet, or a fragment of bomb, &c. of which examples may be found in the memoirs of the Royal Academy of Surgery;" (How are we, previous to an operation, to ascertain the nature of the neuclus?) "of which we have seen examples, and placed specimens in the cabinets of the Medical Faculty of Paris; and of which before us, Collet, Moinicken, Cavillard, Mareshal, J. L. Petit, Morand, Desault, &c. had found examples in their practice. Such stones assuredly would not be destructible by our mechanism; although, to say the truth, they might by means of it be reduced in volume and weight, and thereby become a little less painful; which, however, would not remove them from the domain of lithotomy."

Such is a general outline of the plan of M. Civiale. It must be remarked that he is not entitled to originality. Plans similar in principle, were proposed and executed many centuries since, and have been more lately, several times performed. A case is related where Colonel Martin, of the East India service, performed the operation on himself. Yet with these facts before the surgical public, the plan was neglected, and it became forgotten, until so ostentatiously reviv'd by M. Civiale. It is singular with what gravity a body can receive the illu-

sory schemes of chimerical men, and many of them too, which if emanating from any other than philosophers, would be treated with derision and contempt. In illustration of this we will make the following quotation from the report before us.

After speaking of the sanguine expectation of the distinguished Fourcroy, that chemical remedies would be discovered which would make useless any operation for Lithotomy and his disappointment, they proceed :

" The same thing had occurred a few years before, when Dr. Manduyt de la Vareune, guided by the illusion of a good man, announced so eagerly to the Royal Society of Medicine, that by means of a prudent use of electricity, directed even into the bladder, it would be possible to fuse the stone, or reduce it to dust—a project which no one, not even its author, was ever sufficiently bold to attempt.

" Can Messrs. Prevost and Dumos be more successful with the galvanic pile, and in introducing into the bladder two conductors, separated from each other, and performing the functions of two poles, in order to exercise on the stone, which is in contact with them the same action which the fluid exercises on this concretion, (if it contains very little or no uric acid,) when, together with the conductors, it is immersed in a vase filled with water ? What a blessing would it not prove to the calculous patient, could these two distinguished philosophers one day apply so fine a theory, and realize such high expectations ! But how many difficulties will they not have to surmount ! How many subsequent meditations, attempts, and trials of all sorts, will they not be under the necessity of resorting to, before obtaining a success of which they are so worthy ; but which will possibly soon appear to them still more impossible than it does to us, notwithstanding the assurance to the contrary given by the Bavarian physician Gruithuisen, who, anticipating by ten years our philosophers of Geneva, announced to the public that with six hundred plates the experiment would succeed."

We will make no comment upon this quotation.

Dr. De La Roche, the respectable translator, congratulates the profession upon so great an improvement and upon the probability of its being introduced into this country. He informs us that Dr. Physick, a cautious and distinguished sur-

geon has eagerly embraced this operation, and that Dr. Parrish, of Philadelphia, and Dr. Stevens, of N. York, have cases on whom they will try this method.* We hope these gentlemen and others who may try it will publish to the world their success or failure. For if it be really a surgical improvement, the sooner it gets into public use the better, and if not so, it cannot too quickly get into disrepute. We are not disposed to be illiberal or condemn hastily, but we cannot help fearing that this wonderful invention will prove nothing more than an Ignis Fatuus—the complication of instruments, the force necessary to break down hard calculi, the injuries liable to be done to the urethra, adjacent parts and bladder, the almost utter impossibility of getting out of the bladder all the fragments of the calculus, when broken down, and the probability, nay almost certainty, of a reproduction of a stone from the neuclus, are to our minds strong objections, and we are sorry, we repeat, we cannot with the respectable translator, as yet rejoice at the alleviation which persons labouring under stone, will have from otherwise a painful disease or hazardous operation. We hope this may be so, but we will wait the issue of time. Many inventions equally plausible, and much more highly eulogised, have been found, upon general use, deceptive, and of no value. We are aware that in thus giving our opinion, we may be thought (by some more enthusiastic than ourselves) opposed to improvements. No one, we will venture to say, could more heartily than ourselves rejoice in seeing important improvements succeed, especially in our profession. Still we cannot but think their are a great many things foisted on our profession as improvements, more from the desire of novelty, than of utility.

* Since writing this article, we have observed in the first No. of the new series of the Philadelphia Journal, that Drs. Physick and J. R. Barton, have operated on the living patient. We regret that the Editors did not mention the result of their experiments. It appears that the Lithontriptic instruments have been improved by Mr. Lukens of Philadelphia. We trust that trials with these, by American Surgeons, will be fairly laid before the American Medical public.

ART. VII.

Some Account of the Prangos Hay Plant of Northern India; prepared by permission of the Honourable Court of Directors of the East India Company. By Mr. JOHN LINDLEY, *F. L. S. &c. &c. Assistant Secretary at the Garden of the Horticultural Society of London. Communicated for the London Quarterly Journal of Science, &c. by the Author.*

We beg leave to call the attention of our Agricultural patrons particularly, to this new species of Hay Plant. If the seeds could be obtained, and should succeed, the acquisition to our southern country would be incalculably great. We need scarce say that few grasses calculated for hay will succeed well in our climate, and this wonderful productive plant, may supply what we have so long wanted. The product, it will be seen, is prodigious, and it is so tenacious of life, as to thrive in impoverished soils. We trust the enterprizing members of our Agricultural institutions throughout the country, will use exertions to obtain the seed and give it a fair trial.—*Editors.*

In the north of India, in the neighbourhood of Imbal or Draz, grows a plant called Prangos; much employed as fodder for cattle, and of properties represented by the natives to be so marvellous, as to have excited doubts among the Europeans, whom reports of it had reached, as to its being more than an Oriental exaggeration. Owing to the little intercourse which takes place with the unfrequented districts where it was stated to grow, no opportunity occurred of gaining accurate information respecting it till the year 1822, when William Moorcroft, Esq. the superintendent of the Honourable East India Company's stud, on deputation to Upper Asia, having occasion to enter into communication with the Chinese authorities of Ela, undertook a journey to Draz, for the purpose of examining into the truth of the properties ascribed to the plant by the natives.

The information, thus acquired, appeared to this gentleman of such importance as to be worthy of an especial communication to the government at Fort William. Two chests

of the seed, and specimens of the Prangos Hay itself, were forwarded from India to this country, and presented by the Honourable Court of Directors to the Horticultural Society, with the correspondence between Mr. Moorcroft and the Indian government. Having had the honour to receive permission to use these important documents for the purpose of publication, I have prepared the following account of this remarkable plant. which may possibly become an object of great importance to our colonies in an agricultural point of view, whether we consider its amazing produce, its beneficial effects as a food for cattle, or the little care which is requisite in its cultivation.

The following are extracts from Mr. Moorcroft's letter, dated from Wakha, left bank of the Molbee Ches, 15th August, 1822 :—

" The plant called Prangos is employed in the form of hay, as a winter fodder for sheep and goats, and frequently for neat cattle ; but its seed, when eaten by horses, is said to produce inflammation of the eyes and temporary blindness. The properties of Prangos as a food appear to be heating, producing fatness in a space of time singularly short, and also to be destructive to the Fasciola Hepatica or Liver Fluke, which, in Britain, after a wet autumn destroys some thousands of sheep by the rot, a disease that, to the best of my knowledge, has in its advanced stages hitherto proved incurable. The last-mentioned property of itself, if it be retained by the plant in Britain, and there appears no reason for suspecting that it will be lost, would render it especially valuable to our country. But this, taken along with its highly nutritious qualities, its vast yield, its easy culture, its great duration of life, its capability of flourishing on lands of the most inferior quality, and wholly unadapted to tillage, impart to it a general character of probable utility unrivalled in the history of agricultural productions. When once in possession of the ground, and for which the preparation is easy, it requires no subsequent ploughing, weeding, manuring, or other operation, save that of cutting, and of converting the foliage into hay. Of its duration I have two facts, viz one of its seeds having been carried westward along with those of Yellow Lucerne, above forty years ago, and sown on the eastern frontier of Kashmeer, where they vegetated, and where the plants of the *first* growth still remain in a flourishing condition ; in the second instance, the seeds

were transported eastward, and sown upon rocks near Molbee, where their plants flourished for about forty years, but in consequence of a long period of drought, during which there fell scarcely either rain or snow, the Prangos perished along with the crops of that district in general.

" From various facts, it is conceived not unreasonable to presume that by the cultivation of this plant, moors and wastes, hitherto uncultivated, and a charge of disgrace to British agriculture, may be caused to produce large quantities of winter fodder, and that the yield of highlands and of downs, enjoying a considerable depth of soil, may be trebled. I have made every precautionary arrangement in my power by presents, &c. for gathering, drying, packing, and transporting a large quantity of the seed, and have left Mr. Guthrie, the apothecary, to superintend the operations. One cask will be transmitted through Kashmeer, and two others through Bushebar. And I take the liberty of submitting to the Most Noble the Governor-General in Council, the probability of this plant being of use to the new settlers, our countrymen, at the Cape of Good Hope, and to the colonists in general. As the Prangos has hitherto been of spontaneous growth alone, practices better adapted to the nature of the plant or of the country may be adopted at a future time ; but from a view of its habitudes in its wild state, I venture to suggest that the seeds be dibbled singly into holes an inch deep and a foot apart, a short time before the rainy season.

" During three years the plants will be little productive, but in that interim they will not be in the way of any other surface crop."

Judging from the specimens sent by Mr. Moorcroft, each plant will produce about one and a half pound of dry fodder, which, allowing each plant to occupy four feet of ground when in perfection, will give a produce for bad land of more than a ton and three quarters each acre, which is nearly equal to the produce in hay of the best English meadows. But if the distance recommended by Mr. Moorcroft be sufficient for the growth of the plants, that is to say, one foot, then allowing a plant to produce only half a pound of hay, an acre would yield the amazing weight of something more than nine tons and an half, a quantity which certainly appears to exceed credibility.

It is much to be regretted that from the length of time which elapsed between the despatch of the seeds by Mr.

Moorcroft and their arrival in England, that is to say, from the 15th of August 1822, to the month of April, 1824, their vegetative powers had become so much exhausted as to render it extremely doubtful whether success will attend the experiments upon growing them. Now, however, that attention is called to the plant, other and speedier means may be employed for despatching the seed; no difficulty in procuring which can now be anticipated, Mr. Moorcroft having made arrangements with Ripghias, the Kenphun, and Mahomed Khan, the Chummuel of Draz, for a supply of any required quantity of the seed.

The Prangos Hay Plant is a perennial herbaceous plant, with a large fleshy root stock, usually measuring at the top from 18 to 22 inches in circumference, and formed by the aggregation of an infinite number of crowns or winter buds clustered together at or above the surface of the ground.—The *crowns* are closely covered over by the coarse fibrous remains of the old leaves, by which the buds must be effectually protected from frost or accidents when the plant is in a state of rest. From each crown rises an abundance of finely cut leaves about two feet long, when dried of a highly fragrant smell, extremely similar to that of very good new clover hay. They are supra-decompound, quite smooth, with linear, entire, or three-parted segments; their principal petiole is slightly sheathing at the base with a crisp thin margin; upwards it is solid, round, or slightly angular, with a smooth finely-striated skin. Of the secondary petioles there are from six to ten opposite pairs, according to the vigour of the leaf; they are in all respects like the primary petiole, except being smaller and more compressed, and having the first pair of their segments proceeding from their very base. In these leaves the whole crop may be said to consist.

From the centre of the leaves rises the *flower-stem*, which I have only seen in a young and mutilated state. Good specimens of the *inflorescence* have not reached me; but from some imperfect umbels of flowers, I can state that the male and female flowers are produced upon distinct umbels. Of the *male flowers* the *umbels* are compound, shorter than the bracteæ by which they are subtended, and both axillary and terminal; the *bracteæ* are finely and deeply pinnatified with three-parted segments, of which the endlobe is broader than the rest, and often three-toothed. The *involucres* are both general and partial, each consisting of five or six mem-

branous ovate-acuminate leaflets, which are shorter than the stalks of the umbellules, or of the florets. At the base of the umbel are clustered several scarious rudiments of florets. The *calyx* consists of five distinct ovate minute sepals. The *petals* are five, lanceolate, spreading, incurved, with a minute dorsal nerve. The *stamens* are five, spreading, the same length as the petals, and inserted opposite the sepals beneath a large, fleshy, slightly wavy *discus*, which surrounds two little processes, the rudiments of as many styles. The *filaments* are incurved, and quite smooth. The *anthers* large, square, innate, bilocular; each cell opening longitudinally with two valves. The *female flowers* have not yet been observed. The *fruit* is inferior, and consists of two united achenia, at maturity separating from base to summit from their common axis; it is oval-lanceolate, compressed, eight or nine lines long, and is crowned with two recurved styles, arising from the centre of a large, fleshy wavy discus, and with the cory sepals of the persistent calynx. Of these achenia, the commissure or point of union is nearly flat, and narrower than their transverse diameter. Of each the pericarpium is corky, with five primary juga or elevations, which are in the centre produced into a corky wavy wing, and on each side covered densely with coarse tubercles; there are no secondary juga, and the valleculæ, or intervals, are concave and smooth. The *seed* is of the same form as the pericarpium, from which it is easily separable; it is covered over with an indefinite number of colourless vittæ, both on the commissure and back; it has an involute horny albumen, and a minute, inverted, white embryo at its upper extremity; the cotyledons are flat and oval, the radicle rounded, and as long as the cotyledons.

From the foregoing description, which has been formed from such materials as have reached this country, it appears that the Prangos Hay Plant belongs to the natural order of Umbelliferæ, and that it bears much affinity to the genus *Cachrys*, with which it agrees in the corky nature of its pericarpium, in the absence of secondary juga, in having no vittæ, and in the involute structure of its albumen. With *Krubera* of Hoffmann, which it resembles in the general appearance of its fruit, it may also be compared, notwithstanding its difference of habit; with that genus, however, it cannot be united, on account of its involute not solid albumen, numerous vittæ, and lanceolate not emarginate petals. From

Laserpitium it differs materially in having involute albumen, an indefinite number of vittæ, and no secondary juga, while its primary juga, which in Laserpitium are obsolete, are in Prangos the most conspicuous part of the fruit. To *Rumia* of Hoffmann it is not referable because of its solid pericarpium, distinct winged juga, and long flat achenia.

To revert, therefore, to Cachrys, with which, as I have already stated, Prangos has many points in common: if Cachrys Morisoni, the fruit of which has a solid, corky smooth pericarp, with its juga nearly obsolete, is to be considered the species in which the essential character of the genus is to be sought, it is obvious that Prangos cannot be considered of the same genus. But if Cachrys be admitted in the form under which it has been placed by Sprengel in the sixth volume of Romer and Schultes's Species Plantarum, it is equally certain that the subject of this article cannot be separated from it. Differences in the fruit and petals of Umbelliferæ are, however, by the common consent of botanists, admitted to be of such importance in fixing the characters of the genera of that order, that a combination of plants, like that which has been attempted in the work above quoted, must be considered utterly subversive of analytical division, and can only lead to a return to the genera of Umbelliferæ as Linnæus left them

Besides Krubera and Rumia, the distinctions between which and Prangos I have already explained, there is a third genus included in Cachrys by Sprengel, but separated by Professor Link, under the Bauhin's name of *Hippomarathrum*. From this Prangos seems principally to differ, in having entire, not pinnatified, involucra, the juga winged, not rounded, and the petals lanceolate, not round with a broad involute segment; all points of great importance in characterizing umbelliferous plants.

Having thus shewn that the Prangos Hay Plant is strictly referable to no genus of Umbelliferæ at present constituted, I propose here to establish it with the following name and character :—

PRANGOS.

Char. Nat.—Calyx quinquentatus. Petala æqualia, lanceolata, incurva, integerrima. Discus carnosus, crispus.—Achenia a dorso compressa. Pericarpium suberosum: commissura plana, angusta; jugis quinque primariis alatis, secundariis nullis. Semen multivittatum. Albumen involu-

tum.—Herbæ *Asiæ temperatæ.* Involucra *universalia et partialia simplicia, polyphylla.* Flores *abortu monoici, lutei?* Folia *suprad-composita.*

Among the plants placed by Sprengel under his genus Cachrys, is the *Laserpitium ferulaceum* of Linnæus, found in the Crimea, a climate not very different from that of Draz, and described by Marschall von Bieberstein under the name of *Cachrys alata.* This having a winged corky fruit, like that of Prangos, and otherwise agreeing with it in character, the genus now established will consist of two species, which may be distinguished thus :

1. Prangos *pabularia.* Mihi supra.
   P. foliis glabris.
2. Arangos *ferulacea.*
   Syn.—Cachrys orientalis ferulæ folio. *Tourn. it. 2. p. 286 c.* ic.
   Laserpitium ferulaceum *Linn. Sp. Pl.* 358.
   Cachrys alata. *Bieb. Taur. Cauc.* I. 217.

ART. VIII.

Case of Amputation of a portion of the Inferior Maxillary Bone, performed by Benjamin B. Simons, M. D.—*Reported by the Editors.*

The operation which we are about to relate was certainly one of the most masterly efforts in Surgery which we ever witnessed, or we will venture to assert was ever performed in any country. An operation so formidable as the amputation of a portion of the lower jaw was performed with so much coolness, simplicity and ease, as to have appeared nothing more to those who witnessed it than a simple operation. It is, however, the peculiar characteristic of Dr. Simons, to make every thing which he does appear simple, and thus disarm Surgery of many of the bugbear terrors with which it has been surrounded.

Before describing the operation, we will give the case : A black girl, aged about 14, was sent from Beaufort, having an

Exostosis on the right portion of the inferior maxillary bone, extending from the chin to the base of the anterior coronoid process. This bony tumour was of considerable size, projecting much and very painful. The internal portion was filled with a cartilaginous substance, which protruded out of the alveolar processes which were previously occupied by the molares. No cause could be given for the origin of this tumour which had been for some time progressing.

As the only possible means of giving relief, Dr. Simons determined to amputate the jaw, and accordingly performed it before several medical gentlemen in the following manner:

An incision was made through the muscles from the right angle of the mouth to the masseter, avoiding the parotid duct—compressing the divided arteries as they were cut.—The whole was then carefully dissected from the bone as far as the bicuspes on the opposite side, and the lip folded back like the heel of a shoe.

The surrounding membranes being detached, the bone was divided between the incisores and bicuspes of the left side, and then at the base of the anterior coronoid process of the right side. The bone being thus separated, was divided close from its adhesion to the internal membranes of the mouth.

The wound was now approximated, and retained by interrupted sutures and adhesive straps, and supported with bandages.

During the operation, the hœmorhage irritating the fauces and creating vomiting and partial suffocation retarded it slightly—although the hœmorhage was by no means so considerable as might have been anticipated.

Large doses of laudanum was given* the patient and she walked some distance to the adjoining residence. In this case no untoward circumstance occurred. The incised wound united on the seventh day, except where the sutures were, from whence a small quantity of pus issued, but which quickly healed as soon as the sutures were withdrawn. In fourteen days she felt quite well, and could chew meats on the opposite side, and now two months and a half she has a callus which has luxuriantly shooted where the bone was cut away. Since the performance of this operation, the Medical Intelligencer has related a case, performed by Professor

* It has always been the practice of this distinguished Surgeon to give large doses of laudanum after capital operations to lessen the excitability, and thus diminish the chance of injury from excessive irritation, and in this manner he has always prevented spasms.

Batchelder, and considers it as a triumph in American surgery. We regret to say, that although the operation displayed considerable manual dexterity it gave great scope for censure in place of praise. Why take up the carotid artery the day before? Why make an incision down to the pomum Adami? Those two hazardous steps by the case of Dr. Simons will be found to have been nugatory, and consequently wanton. We are not disposed to be severe, but their is a wide difference between operating mechanically and scientifically, and in this case their evidently was a total want of science displayed. Any useless complication of an operation thereby increasing the hazard of life, must call for the censure of every conscientious surgeon.

Before concluding, although not immediately connected with this report, we cannot do otherwise than express our mortification that so many of our citizens should go to the North to obtain that medical and surgical aid which they could obtain equally as well at home. Once it was the fashion to go to Europe—our brethren of the North have found that they can be as well attended at home among their friends and at a less expense—and why cannot our southern brethren do the same at home? Let it not be said of us that we are the last to encourage the distinguished among ourselves—and let us not forget the good old maxim, "that he who neglects his own household will find no one to supply his place." We mean in this nothing invidious or disrespectful to our northern brethren. We delight in contemplating their rapid advancement in every department of mind, and trust it will excite a proportionate spirit of emulation among us.

ART. IX.

It is with sincere regret that we announce to the lovers of Science, the much-lamented death of Professor BECLARD; and we think a short biographical sketch of this great man, (as we find it in the Archives Generales de Medecine of March last,) cannot fail to interest the public at large; although few may feel so truly concerned as one of the Editors of this Journal, who was under his immediate instruction while in Paris.—*Editors.*

A Biographical notice of P. A. Beclard, Professor of Anatomy in the Faculty of Medicine at Paris, Surgeon in chief of the hospital La Pitie, titulary member of the Royal Academy of Medicine, 44.

Beclard is arrested in the midst of his bright career. The most learned anatomist of our age, the professor who possessed in the highest degree, the rare faculty of explaining to and ingrafting on the minds of his hearers, any subject from his vast store of learning is snatched from us in the bloom of life, and when his increasing success flattered the hopes of his country. Since Bichat, death has not given to science a blow so fatal and unexpected; and since the premature end of that great man, a deeper gloom has not been spread over our schools. Hoping a more worthy voice may be raised in honour of this Professor of the Faculty, this illustrious academician; I cannot deny myself the gratification of paying a last homage to his memory; and where can this homage be more appropriately placed than in this Journal, of which he was one of the founders, and whose proper regulation and success, may in part be attributed to his counsel and co-operation. I regret that this hasty notice prevents my enumerating all the interesting details of our celebrated colleague's short life; thereby precluding a just appreciation of his great acquirements; the reward of intense application. It will suffice to express the extent of our loss, to cite the leading circumstances of his life, and tell the honors with which public grief and gratitude have encircled his tomb.

Pierre Augustin Beclard was born at Angers on the 12th of October, 1785. of estimable, though indigent parents, whose sole means of supporting a large family was a small shop. The great disposition and taste which Beclard early shewed for study, with the advice of their friends, induced

his parents to forego their original intention of bringing him up in their own trade: they furnished him with every advantage of education their situation could afford; and he entered *l'Ecole Centrale* of Angers. His school fellows and companions of his first victories, were Chevreul and David, who have since equally distinguished themselves in different ways.*

From this moment he exhibited his peculiar propensity for the sciences. Botany received his first homage, and he was publicly rewarded for his success in this facinating study, and won several of the prizes in natural history which were distributed at the botanical garden of Angers. Bichat was then at his zenith of glory, and his fame was spreading every where. The trophies of this celebrated physiologist often roused the youthful Beclard, and excited his emulation.—Little did he foresee how much his destiny was to resemble that of Bichat. But to the noble wishes of Beclard, was opposed the inability of his parents to give him a medical education. He was therefore sent to Nantz, and placed in a crockery store. The merchant who had taken him under his charge, soon returned him to his parents, seriously declaring that he was good for nothing. The reason was that he devoted all his time to reading, and evinced a decided dislike to the manuel occupations of that trade. Beclard was again tried at Tours and Angers, in different stores, but his unfitness justified the judicious remarks of the former merchant. His desponding parents bitterly complained that he should evince dispositions so inadequate to their pecuniary circumstances. Wedded to works of science and philosophy, shunning the society and amusements of the young, Beclard often remained days together in his chamber, cultivating his taste, and indulging in the rich luxury of study and meditation.

At length, convinced of Beclard's incapacity for all occupations unconnected with science, and strenuously advised to let him follow his irresistible vocation; his parents consented to his attending the medical instructions at the Hotel-Dieu of Angers, with the modest view of his becoming an *officier de Sante*. Beclard now found himself upon suitable ground, and each of his steps was marked by a triumph.—With the leading principles of the healing art, our young

* M. Chevreul is one of our best Chymists, and M. David ranks among the first French Sculptors.

student was already familiar, and had studied and memorized almost all the elementary works of surgery. His progress was rapid, and in the course of one year, he obtained by public *concours* the station of *Eleve interne** of the hospital: where he remained four years, faithful to the trust reposed in him, and steadfastly supporting his high character. The hours not devoted to the functions of his office or to study, were spent in the society of a much respected almoner of the hospital, a renowned theologist. Notwithstanding the extreme disparity of their ages, a strict friendship was soon formed, under whose honorable auspices his first studies were completed. The old man who could judge of the great talents of his young friend, foretold him of the brilliant success that awaited him, and persuaded his family to send him to Paris to finish his medical studies, and as being the only fit theatre for the developement of all his powers.

I have dwelt on the early life of Beclard, because it foretells the man who would one day immortalize himself. Besides, we love to contemplate the point from whence a great man began to ascend the eminence of fame, and to follow the instinct of talent, surmounting all obstacles in its progress to the desired end.

Beclard left Angers in 1808, and by great economy was enabled to supply for some time, deficiencies of his slender means, and the public *Concours* soon opened to him the hospitals of the capital; and the prizes which he yearly won in *l'Ecole Pratique* at once signalized him as the brightest student of the faculty. The superintendency of the anatomical halls became vacant. Formidable competitors entered the arena; but Beclard left it victorious, after learned discussions, in which he would have astonished his judges by the brightness and maturity of his talents had he not already been known. Here began Beclard's public career. He succeeded M. Dupuytren, who had been called to fill the chair of operative medicine in the faculty; and sustained with honor so trying a comparison. The immense and valuable materials contained in the anatomical halls of the school he greatly improved; and few meetings of the Professors passed, without his presenting very important facts of pathological anatomy. The minutes of this society are filled with his observations, and the museum of the faculty is in-

* One of the attending Physicians who generally resides in the Hospital.

debted to him for many of its valuable preparations.* He also devoted himself in a particular manner, to the teaching of anatomy and surgery. Students rarely deceive themselves in the favour they bestow on their professors. The crowd that followed the lectures of Beclard, was the best recompense for his entire devotion to their instruction. He soon had the opportunity of exhibiting his rare talents for surgery, as a public *concours* was about to take place for the appointment of a second surgeon in the Hotel-Dieu.—For the first time, Beclard did not triumph. His rival was M. Marjolin. The competitors were declared equal, and as Beclard could not be left unrewarded, he received the station of surgeon of the hospital la Pitie. In this, as well as in the hospital of the school, and la *Maison de Sante*, where he frequently replaced Professor Dubois, who had admitted him into his family, he shewed the advantages that could be derived from a thorough knowledge of anatomy added to great natural dexterity, and an immoveable *sang-froid*. No one ever carried precision in the practice of surgery to a higher degree, and several facts testify that he was endowed with a creative genius, which, when occasion calls, will free itself from rule. This was pointedly displayed in a case of partial amputation of a carious foot, where the unforeseen injury was such as required a new operation, which he instantaneously contrived.†

Every voice called Beclard to the anatomical chair, which he filled in 1818. From this time he devoted himself en-

* Among his most remarkable productions, we will notice a memoir on the Acephales, a species of monstrosity little known before him; and another very extensive one on the wounds of the vessels, which has been inserted among the memoirs of the Medical Society of Emulation, of which he was a member. His experiments on this subject have thrown great light on this important point of pathological surgery. A memoir on Osteogeny: This work, the fruit of several years investigation and observation, is the most complete treatise we have on that part of anatomy, which was little advanced and full of errors, until Beclard undertook its elucidation. In 1821, he made public, some of his ideas on the formation of the fœtus, in a thesis defended at the faculty by his brother. This essay on Embriology, is generally known to be a production of Beclard himself. In 1822 he made numerous experiments, tending to improve our knowledge of the pathological anatomy of the nervous system: The result of his investigations is contained in a thesis defended by M. Descot, under the title of Dissertation on the local affections of the nerves. He had together with M. Jules Cloquet, translated from the English, Lawrence's Treatise on hernia; and began with the same author, the publication of the *Fascicules* and anatomical plates, which speak so highly in favour of M. J. Cloquet. His occupations did not admit of his sharing in this glorious undertaking: he only contributed to the introduction.

† M. Beclard has invented many useful operations; among which, we will mention his method of curing the fistula of the parotid duct, and several others for the partial amputation of the foot, the desarticulation of the metacarpian bones, the amputation in the hip joint and the shoulder, the extirpation of the parotid gland, &c.

tirely to teaching. The influence of his character and talents was unbounded. Endowed with a conception at once ready and vast, a judgment sound and methodical, a most retentive memory, an easy elocution, very extraordinary from its precision and perspecuity; it is easy to conceive the advantage he must have derived from qualities so rarely united.—Courses of lectures in this faculty or other scientific establishments have occasionally attracted the public, by either the oratorical talents or other qualities of the Professors; but none can be compared with those of Beclard. The charm of his lessons rested solely on the richness and beauty of the science, expounded with simplicity. The Professor was concealed by the object he so luminously displayed. We may judge of the difficulty and importance of instruction, when we know that a man of Beclard's superior talents, and who had been in the habit of teaching for several years, devoted four or five hours to the preparation of each of his lectures.*

A passionate love of science, more than a desire of fame, animated Beclard, and stamped his labours with peculiar merit. The brilliant was sacrificed to the useful: it was truth he sought; and it was immaterial to him whether it was discovered by himself or others, so it was brought to light. His talents for observation and experiments have secured him a high place among original authors. He generally contented himself by verifying or confirming the facts upon which rests the medical edifice; and none ever knew them more minutely. How often have we had occasion, at those meetings, where he came to assist in the direction of the Medical Dictionary ;† to admire the universality of his knowledge, and to appreciate its extent and precision on points of science, the most distant from his habitual studies. He first felt the necessity of bringing to France foreign riches, which indolence or prejudice had caused to be neglected, and thus greatly contributed to enlarge the circle of our ideas. It was under these dispositions, and after having emassed the most imposing fund of knowledge ever collected in human brain; that Beclard proceeded to the arrangement of the lectures which he yearly delivered at the Medi-

* Beclard also delivered a course of lectures on Surgery, at the hospital la Pitie — Each year he explored and taught a part of pathological surgery in the same masterly manner that he explained anatomy. It is easy to imagine the labour required to deliver too such courses of lectures at the same time.

† The anatomical department of the Medical Dictionary devolved on Beclard, who has inserted a great number of articles in that work.

cal Faculty. In 1823, he published his elements of General Anatomy, which were only an introduction to a complete treatise of anatomy, the immense materials of which he has left.* I will not pretend to pass judgment on this work ; but I must say that I think, by comparing it with that of Bichat, which bears the same title, the intention and end of the author has been misconceived, who meant it especially for the instruction of students. It is in fact the most concise and complete summary of every thing relative to the general tissues of the human frame. Each page is marked by the methodical and sound mind of Beclard, his sagacity in observing facts, and appreciating the correctness of those transmitted to us by authors.

Beclard was naturally reflective and uncommunicative, and his habit of study and meditation increased this bent of his character. But having overcome the first impression made by his distant and imposing exterior, he was found to be the most condescending and obliging of men. Talents and assiduity in study were titles by which his students could always claim his favour and friendship. They might at any time depend on both his advice and rich library. The fruits of his deep researches and his own original ideas he distributed with prodigal generosity, which extended even to persons who had no call on his regard or esteem. He forgot every thing in favour of science. Some have at times complained of his inflexible equity, which ascribed discoveries to their true authors ; but never did prejudice or envy warp his judgment.

Among the services Beclard conferred on science and humanity, during the short time he belonged to the faculty, there is one we must not pass in silence. Appointed President of the medical jury of the departments, and charged with receiving the officers of health, together with his friend and colleague Professor Orfila, who ardently seconded him, he discharged his functions with a severity and exactitude, which greatly diminished the inconveniences of an ill-regulated institution, and by the dignity of his conduct, completely effaced the recent remembrance of a number of shameful abuses.

* Two years previous, Beclard furnished numerous notes for the re-impression of Bichat's General Anatomy : These notes, whose object was to place this work on a level with the science, constitute the materials of a large volume, the greater part of which forms the Elements of General Anatomy.

The loss of Beclard will be particularly felt at a time when the spirit of party and political divisions have thrown science into a state of anarchy, and produced such deplorable consequences in our medical institutions. Esteemed by all for his talents and character, he was a mediator and umpire of parties and opinions. He had nearly been himself the victim of those political reactions from which science ought ever to be screened. Beclard in devoting himself entirely to public instruction, sacrificed the advancement of his fortune, and neglected the lucrative advantages which he might so easily have derived from his great talents in surgery. At the reorganization of the medical faculty of Paris in 1823, great fear was entertained of the dismission of the Professor who had been its support and ornament. The eminent merit of Beclard, together with the necessity of having him in the new school, triumphed over intrigue.

Unremitting assiduity to study had already impaired Beclard's health, and he had several times felt the symptoms of a chronic inflammation of the stomach, which yielded to a strict regimen; but at the beginning of this month, the same causes occasioned an acute affection of the brain, preceded or accompanied by an erysipelas of the head, which caused his death on the 16th of March, after eleven days sickness, notwithstanding the aid of science and the anxious watching of friendship.*

In the beginning of his disease, and at those intervals when a remission gave freedom to his mind, he recognised the danger of his situation, and established the diagnosis of his case with as much precision as if it had been for one of his patients.†

A happy husband and father, beloved by two families of which he was the pride and hope, every where surrounded by the consideration due to his great talents and high character, Beclard keenly felt all that attached him to life. Indifference would have been ingratitude, which never entered

* It is worthy of remark, that in a short space of time, the two youngest and brightest Professors of the Faculty, two friends whose scientific career has been so much alike Orfila and Beclard, were both taken with the same disease, which endangered the life of the one, and unfortunately proved fatal to the other.

† Upon examination of the body, a considerable sanguineous congestion of the brain and its membranes was discovered; in the stomach was found the cicatrisation of an ulcer, which had destroyed in a small extent, the two internal membranes of that viscera. The Encephalon was of a considerable size, and its anterior portion of a volume greatly contrasting with the small developement of the posterior part

his heart; but he viewed his approaching dissolution with a calm and steady eye.

The general solicitude expressed during his sickness, and the public consternation occasioned by his death, are the most speaking and delightful eulogiums of Beclard. The Professors of the Medical Faculty, a great number of physicians of the capital, and more than two thousand students came to pay their last tribute to their colleague, their friend, and their master. His pupils contended for the honor of alternately carrying his coffin to the place destined to receive his mortal remains; and contrary to repeated solicitations they would not abandon that sacred deposit, and the useless funeral car followed the procession which crossed the greater part of the city.

The multitude, astonished at such an extraordinary pomp, where they could not discover the insigna of power, continually asked the name of him, to whom this touching homage was paid,that name so honorably inscribed in the records of science was unknown to them. It was soon murmured: *It is the son-in-law of M. Dubois;* and the popular fame of this great man, and at present unfortunate father, added to the grandeur and sadness of the ceremony.

On arriving at the east church-yard, after a walk of nearly two hours, the students deposited their precious burden not far from the spot where the disciples of Monge have erected a monument to this illustrious man. There M. Pelletan, Junior, in an extemporanious discourse, expressed the regret of the Medical Faculty.

M. Roux, the organ of the Royal Medical Academy, particularly of the surgical department, after lamenting the premature death of a colleague to whom science was so much indebted, and from whom it still hoped much, terminated his discourse with the following delicate & beautiful comparison.

"These numerous students, said he, surrounding his coffin, the eagerness they have displayed in accompanying to his last abode, the remains of their master, whose voice was heard but a few days since in those fascinating lectures, which, while they inspired a taste for study, sowed in their minds the germ of a solid information, the tears I see them shed, the sincere affliction so visibly marked on their countenance, and the few words I have just uttered on the meteor-like course of our lamented colleague, and the beloved friend of many here assembled; all brings to my recollection

the no less afflicting day, when paying the last duties to Bichat, I deposited on his tomb the tribute of a disciple whom he loved. Beclard has lived a few years longer than Bichat, but like him he has only passed among us. Like Bichat he has undoubtedly fallen a sacrifice to excess in study. Like him he has made numerous scholars. Like Bichat, of whom perhaps he possessed not the creative genius; but to whom he was superior in many respects, he leaves never failing witnesses of true and rare talents. Like Bichat, Beclard will be numbered with those men, of whom nature is covetous, and science ought to be proud. Like Bichat, he carries with him the regrets of pupils who flocked to hear him. Like Bichat, we see his tomb surrounded by numerous friends, and his death plunge into grief all those who know equally how to prize talents, purity of morals, goodness of heart, and integrity of character; all of which our colleague possessed in the highest degree."

M. Pariset came next in the name of the whole Academy, to express the sorrow of that body. The void, said he, that Beclard has left, will be most sensibly felt by the Academy. Who among us but was charmed by the rectitude, the variety, solidity, brilliancy of his ideas, his presence of mind and the light which he constantly threw on the most subtle and perplexing questions? The Academy owes to his vigilance, assiduity, and unquestionably to the personal consideration in which he was held, its early aggrandizement and stability. No one has more properly appreciated the labours of Beclard than he who now addresses you; and happy is he to know, conjointly with the Academy, that what causes us this day to weep, will also cause us forever to cherish his memory.

M. Adelon succeeded M. Pariset, and in the name of friendship, feelingly eulogized the private virtues of Beclard, and lastly a student, M. Ridard of Angers, poured forth the grief and gratitude of his young heart in an encomium on his compatriot and beloved instructor.

Beclard's pupils who had not for a moment left his coffin, would not confide to others the heart-rending task of covering the remains of their idolised master, from whom they were to be forever separated. Neither was this pious duty the last mark of their love: In order to consecrate hereafter by a durable testimony, the sentiments which animated them, they spontaneously and unanimously opened a subscription list for the purpose of erecting a monument to him, who sacrificed his life for them.

ART. X.

*To the President and Members of the Agricultural Society of Charleston, S. C.**

GENTLEMEN.—The zeal and energy which have been been exhibited by your respectable body, as regards every thing connected with Agricultural improvements, emboldens me to address you at this time, trusting that what I may offer to your consideration may not be considered as emanating from a want of respect for yourselves, or as a wanton intrusion on your time and attention. Things in themselves apparently trivial, have often given rise from exciting inquiry, to the most important consequences, and could I elicit in the subsequent remarks the wisdom and experience of many of your members, I have no doubt many useful and important results might ensue.

The Patriot, in contemplating the progress of our rapidly extended country, must look with an anxious and eager attention upon the Agricultural interests, for on them, in a great degree, depends the wealth and strength of a country and the happiness of its people, and we especially in the South must be sensibly alive to every thing connected with Agriculture.

It has been a matter of serious concern that with us, possessing so much land, and so many cultivators of this land: in a climate well calculated for the growth of so many valuable products, the Agriculturist should so often be embarrassed—and that which should yield comfortable subsistence, become an expense, and often his ruin. It must be interesting then, not only to inquire into the principal cause of this, but likewise the best means of preventing it; on this subject, therefore, I beg your attention for a few moments.

The true cause of failure arises from an ignorance, generally speaking, in Planters, of the principles and science of

* In consequence of the subsequent remarks, we have inserted the above Communication, thinking it might be acceptable to our readers—and elicit discussion on the interesting topic to which it refers.—*Editors.*

† Mr. EDITOR—The above paper was read before the Agricultural Society, at their Meeting on Tuesday, 28th June. The zeal and patriotic spirit displayed throughout the whole, reflect much credit upon its author, and it is to be lamented that such a valuable Communication had not been accompanied with his name. The Society, ever ready to promote any thing connected with Agricultural improvement, and convinced of the beneficial effects that would result from an extensive diffusion of the author's views and sentiments, unanimously resolved that a request be made of you to insert it in your useful paper.

CHARLES E. ROWAND, *Secretary.*

‡ *Charleston Mercury.*

agriculture. Throughout a great proportion of our country, we discover immense bodies of land deserted, and are told that they have proved the ruin of those who cultivated them; and how many settled plantations are left almost wholly to chance for the attainance of a crop? Could not many of these lands be greatly improved and made profitable, and could not occupied lands be much enhanced in value?

In the formation of a successful Agriculturist, many things are indispensably necessary. He should have a thorough knowledge, practically, of the different qualities of soils, and the best means of improving them. He should be well acquainted with the general principles of mechanics and mechanical philosophy, so that he might arrange his lands properly—and be enabled successfully and economically, to drain or supply them with water. The theory of vegetation, and the causes which retard or promote it, are, you must be sensible, all important. These are the elements which should be studied by every person wishing to become an Agriculturist. A thorough knowledge of these will admirably prepare him for that practical knowledge which experience and observation alone can give. The mind will then be governed by just principles, and every experiment or improvement, in place of being suggested and executed upon mere speculation, will be founded on philosophical and practical data. Thus gradual and successful improvements will be made, and the product of the soil be abundant, and reward the honorable labour of the agriculturist.

But what is our present condition? Are not the majority of those who call themselves Planters, ignorant of the first principles of Agriculture? Do they not want system, arrangement and economy? Does their income prove any thing proportionate to the capital and labour employed? Do they not in short trust almost wholly to nature, and neglect the power and assistance of art? Nature so bountiful to us, cannot forever serve, as it must be assisted by art, or it will fail to give that abundant supply which a state of civilization requires. But how can this be otherwise, when we discover the facility with which individuals become planters. All other departments of knowledge require particular attention, but this it is imagined can be intuitively obtained. We observe young men fresh from their Academical studies, where their time and attention have been devoted to abstract principles, and who are almost wholly ignorant of the world, en-

ter immediately upon the duties of the Planter, without a knowledge of the theoretical or practical principles of agriculture, and are instantly converted from abstract students to practical men. But is it possible that this transition can suddenly take place? Do they not get disgusted with the drudgery and details of Agriculture, and thus neglect it? Is not their ignorance of the principles of agriculture and the character of the people they have to deal with a constant source of imposition, and does not their property become neglected and unprofitable until they are instructed by a severe and dear bought experience or are entirely ruined?—This, gentlemen, is no speculation—Innumerable cases of this kind are to be seen in our country, and the evil is still existing to an alarming degree. Too many of our planters, from this cause, do we discover in debt and deprived of many of the luxuries of life and the means of promoting the useful institutions of their country. Too many do we see, who commenced life with a handsome competency, die and leave their families in penury and want. These are serious and distressing evils, which are every day presented to us.—And from what cause does this arise, if not from a total ignorance of agriculture? But it will be asked how will this be corrected—In no other way than by instructing those who are likely to become planters in the knowledge and principles of agriculture. It should be regarded as a profession, and every department of knowledge which can in any way relate to it should be studied. Thus every portion of our country would become gradually improved. Our lands would increase in value, and the product of the soil be various, useful and abundant. Lands now in waste would be in high cultivation, and swamps now deluged would afford beautiful and rich pasturage. Every portion of our country would be employed and improved, and every thing abundant and cheap.

Independent of this young men who have to look forward in life for success upon their exertions alone, should be instructed professionally in Agriculture that they might superintend the property of others. I am sensible that an overseer is looked upon in an odious light, and too many of our countrymen would prefer to lead a life of indolence and inactivity than pursue this avocation.

Conducted as things now are we cannot wonder at their aversion. Our planters have been too much in the habit of

employing low and uneducated men to superintend their property, whom they could not respect, and thus have rendered the occupation degrading. But let us consider this matter; it is of the highest importance and deserving of your most serious attention.

All professions it will be granted are honorable in themselves, and are only made otherwise by the individuals who compose them. We respect the Lawyer, the Physician, the Factor, the Merchant; and why not the Professional Agriculturist? Why should he who directs the improvement of your soil and the cultivation of it, be less respectable than he who sells the product of that soil? There can be no just reason for this. It is true you can not respect the men you employ. But it is a matter of astonishment, that on account of a few hundred dollars, you will leave your whole property in the hands of ignorant men, whom you cannot respect and in whose agricultural attainments you have not the slightest confidence.

Would you not regard the Merchant who employed an ignorant man as his head clerk, deserving of those embarrassments which such a procedure would necessarily ensure, and yet in your department you are constantly committing this error. To correct this growing and serious evil, young men should be encouraged to pursue the study of Agriculture, and undertake it as a profession. The undertaking can be made respectable. Patronize and encourage young men of industry, give a tone to the pursuit, and you will rapidly command those of talent, industry, and merit, as superintendents of your property. But it has been said that the pride of a respectable Carolinian cannot submit to so degrading an occupation. This is a false pride which it rests with you and you alone to destroy. Convince him by your countenance and support that he is pursuing a noble and honorable occupation, useful and important alike to himself and his country. Let him learn the important lesson that true pride conceives nothing degrading which does not infringe upon virtuous and honorable principles. That the character and respectability of a person are to be estimated by his moral excellence and not by his pursuit. Infuse into his mind the just principle that he is nobler and deserves infinitely more the respect and esteem of a community, who by his industry and exertion honestly raises himself to affluence and respectability than he who receiving it as an inheritance,

leaves too often to his descendants poverty and pride. It should be the endeavor of all good men who delight in the prosperity and glory of a country, to subvert all principles which militate against it, and what can militate more powerfully against the rising greatness of a country than the influence of a false pride which contemns the honorable and industrious occupations of life, and would prefer indolence and poverty or a miserable dependence on others. In every country, knowledge and industry must be considered as the levers which must start into action its prosperity and glory. The people must look to themselves for success in life; possessing good educations and industrious and economical habits, they will be prepared to go into the world, become valuable members of society, and exhibit the wonderful influence and power of knowledge and industry. They must be taught to feel no pride, but the pride of honorable success, and they will experience the delightful reflection, that by their exertions they have become useful members of society. I do not mean to disparage my countrymen—no one can admire more than I do their many honorable characteristics, but false pride is unfortunately the rock upon which too many of them split. Who of us can look around and see how many families of former respectability and usefulness have fallen in their descendants from false pride and indolence, without tears of sorrow and remorse. It is for you, gentlemen, to remove this barrier by regarding the occupation as honourable, and it will quickly become so from the character of those engaged in it. But in encouraging young men of respectable connexions to pursue the profession of Agriculture, you will not only be performing an essential service to yourselves, but likewise to your country. The division of labour is indispensably necessary in a country like ours, where property becomes equally divided, and it seldom falls to the lot of many to receive more than sufficient to set them up in life. Every profession is now crowded with young men, few of whom comparatively succeed, because they have no taste for the pursuit, and therefore are deficient in that energy and exertion necessary to become eminent and successful, and too many seldom think of any exertion whatever.

This new direction of the mind would give spirit and enterprize to many otherwise inactive, and a new and valuable class would be created in our country. I have thus hastily brought to your view one of the most distressing evils which

afflict our country. You all must be sensible of the force and truth of what I have offered, and I cheerfully hope you who have the remedy in your own hands will adopt some plans which may effectually improve our Agriculture. If young men could be made to obtain a thorough knowledge of Agriculture, and pursue it as other professions are pursued, it is impossible to estimate the multiplied blessings which may accrue to our state, and the comfort and ease which you would enjoy—you would be relieved of many vexations cares and anxieties—your lands much improved, and you will have leisure for prosecuting all those studies connected with the higher departments of mind, which will make you not only ornaments to your country, but material contributors to her prosperity and greatness.

I have the honor to be, Gentlemen, very respectfully,

A WELL WISHER TO AGRICULTURE.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

[From the Journal of Science, &c.]

*English Opium.**—Messrs Cowley and Stains still continue to grow poppies for opium, and the following result will shew with what success this branch of Agriculture is likely to be attended. In the year 1823, they collected as much as 196 lbs. of opium from poppies growing on twelve acres, one rod, and thirteen poles of land. Its character was such in the market, that it sold at two shillings per pound above the best foreign opium, and they believe that nothing but the carelesness of cultivators is likely to bring it into disrepute.—One of the most positive directions given to those employed in collecting it, is to avoid the fall of petals, stamina, &c. into the receivers, and to take care if an implement falls to the ground, that it be properly cleaned from grit, &c. a small quantity of which would seriously injure the quality.

The expenses attendant upon the cultivation of the twelve acres, one rod, and thirteen poles of white poppies, and the

* Would not the growth and manufacture of this article be deserving the attention of some of our enterprising planters?—*Editors.*

extraction of the opium, seed, and extract, amounted to 274*l.* 1*s.* 9*d.*, of which above 103*l* was paid to the labourers who collected the opium. The produce was as follows :—

	£.	*s.*	*d.*
Opium, 196 lbs. at 1*l* 10*s.* 6*d* per lb.	293	18	0
Seed, 25 cwt. 1 qr. 22 lbs at 12*s.* per cwt.	15	5	3
Ditto unsold, about 6 cwt. worth	3	0	0
Extract, 381 lbs. at 1*s.* 6*d.*	28	11	6
Turnips, 10 acres, at 2*l.* 10*s.* per acre	25	0	0
	370	14	9

There is one remark respecting the soil brought into this kind of cultivation, so important, that we quote it at length. "A porous subsoil appears to us as a circumstance of the first-rate importance, for where it consists of clay, our crops have invariably been inferior to those which have grown on such parts as were situated upon the sand, although assisted with more manure; and this too, when, owing to frost, no injury could be attributable to the treading of the sheep, when feeding off the turnips. So strong, indeed, is our conviction of the ill effects of an impervious subsoil, that we have no hesitation in saying, that however good the soil, or however dry it may appear, if it be situated immediately above clay, no profit can be extracted from it by the growth of poppies, so frequent will be the partial (or total) failure of the crop."

Temperature on the Earth's Surface.—From a general and extensive review of the various experimental data respecting the temperatures observed at different places on the earth's surface, the Editor of the *Annales de Chimie* deduces the following consequences :

In no place on the earth's surface, nor at any season, will a thermometer raised two or three metres above the soil, and sheltered from all reverberation, *attain the 37th deg. of Reaumer, or 46 degs. centigrade,* (114 *degs.* 8 *Faht.*)

On the open sea, the temperature of the air, whatever be the place or season, *will never attain 25 degs. Reaumer, or* 31 *degs. centigrade,* (—87 *degs.* 8 *Faht.*)

The greatest degree of cold ever observed on our globe with a thermometer suspended in the air is 40 deg. *Reaumer, or* 50 *deg. centigrade below zero* (—58 *degs. Faht.*).

The temperature of the water of the ocean, in any latitude,

or at any season, never rises above 24 degs. Reaumer, or 30 degrees centigrade, (86 deg. Faht.)

Heights of Mont Blanc and Mont Rosa.—Mr. de Welden, after a very elaborate examination of the varioas measurements of Mont Blanc and Mont Rosa, gives the following as the results, which appear to be most accurate :

Mont Blanc, . . 2461 toises, or 15,737 feet.
Mont Rosa, . . 2370 toises, 2 feet. or 15,157 ft.

Capillary Attraction.—M. Gilleron says, " If a capillary tube be introduced into mercury, the metal will remain in the tube below the exterior surface. If then the tube be carefully raised, without taking it out of the mercury, the surface of the mercury in the tube may be raised to the level of that without. Operating very carefully, it may even be raised still higher ; its surface will then become concave, the nature of the curve apparently approaching that of the catenarian curue, which I believe also to be that of liquids, which in capillary tubes are raised above the level of the external surface. If then the tube be depressed a little, the convex surface may be again given to the mercury in the tube, without its level being depressed below that of the external portion.—It appears to me, therefore, that the surface of liquids in capillary tubes is an accessary circumstance, and has no direct influence on the elevation or depression of the liquid."

Maximum Density of Water.—Professor Hallostrum, in a memoir which has appeared in the Swedish Transactions for 1823, deduces the temperature of the maximum density of water, as 39. 394 deg. Fahrenheit. Endeavours were made to estimate every cause which interfered with the experiments, such as dilatation of glass, &c. and he thinks the limits of uncertainty are 0.423 degs. Fahrenheit on either side of the above number.

Use of Chloride of Calcium, as a Manure.—M. Chevalier finds that chloride of calcium is useful as a manure, only in the state of very diluted solution, for that, when applied in the solid state to the soil, it destroyed vegetation. It is something, however, to obtain a confirmation of the results mentioned, vol. xvii. p. 362, even though that confirmation be rather general.

*Mr. Lizars' Case of Gastrotomy.**—"In the year 1821, I was requested by my friend, Dr. Campbell, lecturer on midwifery, to visit a woman with an abdomen as large as if in the ninth month of gestation. On examination, the tumour occupied the whole abdominal cavity, and appeared to roll from side to side; the uterus per vaginam felt natural, and her catemenia had been regular, but caused excruciating pain when they occurred. She stated that she was twenty-seven years of age, had born only one child, and in twelve months afterwards had a miscarriage; two or three months after which, towards the end of 1815, she became sensible of a considerable enlargement of her belly that began on the left side, and which she attributed to several blows and kicks received from a brutal husband, from whom she was now separated: that her neighbours now abused her, and made such complaints to her employers, that they dismissed her. At that time she earned, and now earns, her livelihood by binding shoes. Being now without the means of support, she applied to a country hospital, but was in a few days dismissed, on the supposition of being with child She then consulted a number of respectable practitioners, but all of them cruelly taunted her with being pregnant. At the end of two years, she perceived a small moveable swelling in her left groin, which she allowed to increase for 12 months, when she came to Edinburgh, and, on consulting a surgeon, he opened it with a lancet, and discharged a large quantity of matter. On examination, this was found to be a lumbar abscess, which she ascribed to a fall on her back three years previous. The evacuation of this fluid did not in the least diminish the magnitude of the abdomen, and she imagined she could distinguish between the pain of the lumbar abscess and that of the tumour in the abdomen. She was admitted into the hospital of this place, and remained for thirteen weeks, without receiving any relief She consulted the chief medica gentlemen of this city, many of whom pronounced her prelgnant, and all of them tried to dissuade her from an operation. To put her under different courses of mercury; and, after a consultation, one punctured the abdomen for dropsy of the ovarium.

"Before having resource to the operation of gastrotomy, I deemed it my duty to have the opinion of the principal practitioners of this city, either by personal consultation, or

* Edinburgh Med. and Surg. Journal.

by sending the patient to them. The woman herself also had previously waited on many of them. Some said, that to operate would be rash; others, that I would kill my patient. It was agreed by all. that there was a disease of one or both ovaries; and she had been twice tapped for dropsy of the left ovary, the result of a formal consultation of some of the ablest medical men of this city. Convinced, from the history of the disease in the records of medicine, and from gastrotomy having been successfully performed for volvulus, and from the Cæsarian section, that there was little to apprehend either from loss of blood or peritoneal inflammation, I felt desirous to endeavor to relieve the woman by an operation; but was anxious to have the sanction of some other surgeon or physician besides my friend, Dr. Campbell, who at once offered to assist me. All whom I took to see the patient, and all to whom I sent her, said that the disease was an affection of the ovarium; but all of them condemned an operation. My patient, therefore, abandoned to her gloomy condition, called on me repeatedly, urging me to try the operation, otherwise she would do it herself. At last, as her pain became perfectly intolerable, and she was still urgent, I resolved to operate. During the preceding period, I had directed my attention to the lumbar abscess, and applied caustic, eschar after eschar

"Wednesday, 24th October, 1823, was the day appointed for the operation; therefore, on the day preceding, she took a dose of the compound powder of jalap, which operated also on Wednesday morning, so as to preclude the necessity of administering an enema; she also made water immediately before, in order to empty the bladder. The emptying of the rectum by a glyster, and the drawing off the urine, or taking care that the patient makes water, are circumstances of some consequence to be attended to, in all operations of the abdominal cavity. As inflammation appears to be induced generally by exposure to cold, and as these cases succeeded so well in America, I desired the room to be heated to 80 degs Fahrenheit. When the temperature of the room had arrived to this heat, I placed the patient on a table covered with a mattress, and two pillows supporting her head, and commenced the operation, in the presence of Dr. Campbell, Dr. Villange, late surgeon of the 33d regiment, Mr. Bourchier, surgeon of the 36th regiment, and several other medical gentlemen, by making a longitu-

dinal incision, parallel with and on the left side of the linea alba, about two inches from the ensiform cartilage, to the crista of the o· pubis, through the skin and cellular substance, when the peritoneum appeared, the recti muscles being separated by the distention consequent on the present disease and former pregnancy. I then made a small incision through the peritoneum, introduced a strait probe-pointed bistoury, and made a more extensive opening, into which I inserted the fore and middle fingers of the left hand, so as to direct the instrument, and to protect the viscera. With this instrument I made the internal to correspond with the external incision; while my friend, Dr. Campbell, who assisted me, endeavoured, but in vain, to confine the intestines within the abdominal parietes. Apprehensive of peritoneal inflammation, of which many said my patient would die, I enveloped the intestines in a towel dipped in water about 98 degs. I now proceeded to examine the state of the tumour, when, to my astonishment, I could find none. I next requested Drs. Campbell, Vallange, and Bourchier, to make themselves satisfied that there was no tumour; when Dr. Vallange observed, that he felt a tumefaction on the left side of the pelvis. This, on investigation, was found to be a flattened tumour of no great magnitude, at the left sacro-iliac synchondrosis of the pelvis, lying beneath the division of the common iliac artery into its external and internal branches. Having satisfied all present that this was not the tumour which was anticipated—that it was impracticable to extirpate it—and that the uterus and ovaria were perfectly sound and healthy, I proceeded to return the intestines, and to stich up the wound, carrying the needle as deep as possible, and applying straps of adhesive plaster between the stitches. Compreseses of lint were next laid along and the nine-tailed bandage bound round the body. I then carried her to bed, and gave her an anodyne draught of forty drops of laudanum, which was almost immediately rejected. Ordered her warm toast water and tea.

"When the intestines protruded, and baffled all the efforts of Dr. Campbell and the other gentlemen to confine them, I shall never forget the countenances of my pupils and the younger members of the profession. This fact of the intestines being forced out, proves, along with others, that the lungs can be expanded, although atmospheric air be admitted into the abdominal cavity; the diaphragm acted with

great vigour, and with powerful impetuosity. The operation was performed at one o'clock of the day, and by seven in the evening she had vomited twice; had flying pains in the abdomen, a little hurried breathing, pulse at 100, and some thirst; she also felt uneasiness from inability to void her urine, which was drawn off by the catheter; and, as a precaution, I bled her to syncope, which occurred when eleven ounces were abstracted. She lost little or no blood during the operation.

"This woman perfectly recovered. Vomiting occurred for two or three days after the operation, attended with much pain in the abdomen and fever; but, by prompt and large bleedings, and a strict antiphlogistic plan, these symptoms were subdued, and she now gains her livelihood as usual."

The Hippocratic Oath.—This relic of remote antiquity has for many years slipped from the common view of the Profession. We cannot imagine that affording a place here can give offence elsewhere.

"I swear by Apollo the physician, and Æsculapius the surgeon, likewise Hygeia and Panacea, and call all the gods and goddesses to witness, that I will observe and keep this underwritten oath, to the utmost of my power and judgment.

"I will reverence my master, who taught me the art. Equally with my parents, will I allow him things necessary for his support, and will consider his sons as brothers. I will teach them my art without reward or agreement; and I will impart all my acquirements, instructions, and whatever I know, to my master's children, as to my own; and likewise to all my pupils, who shall bind and tie themselves by a professional oath, but to none else.

"With regard to healing the sick, I will devise and order for them the best diet, according to my judgment and means; and I will take care that they suffer no hurt or damage. Nor shall any man's entreaties prevail upon me to administer poison to any one; neither will I counsel any man so to do. Moreover, I will give no sort of medicine to any pregnant woman, with a view to destroy the child Further, I will comport myself and use my knowledge in a godly manner I will not cut for the stone, but will commit that affair entirely to the surgeons.

"Whatsoever house I may enter, my visit shall be for the convenience and advantage of the patient; and I will willingly refrain from doing any injury or wrong from falsehood, and (in an especial manner) from acts of an amorous nature, whatever may be the rank of those whom it may be my duty to cure, whether mistress or servant, bond or free.

"Whatever, in the course of my practice, I may see or hear (even when not invited,) whatever I may happen to obtain knowledge of, if it be not proper to repeat it, I will keep sacred and secret within my own breast.

"If I faithfully observe this oath, may I thrive and prosper in my fortune and profession, and live in the estimation of posterity; or on breach thereof, may the reverse be my fate!',—*Dr. G. Smith's Analysis of Medical Evidence.*

ART. I.

Observations on the Rise and Progress of CHEMISTRY—*read before the Medical Society of South-Carolina, in* 1823—*by* THOMAS Y. SIMONS, M. D. *Port Physician, &c. &c.*

CHEMISTRY, like other branches of knowledge, arose from casual observations and accidental causes, and its progress was consequently slow. Its antiquity, although zealously advocated by some, is by no means true. When natural, moral, and mechanical philosophy had progressed far, and occupied generally the attention of men, Chemistry was unknown. The cause is evident—the former sciences were connected with those portions of creation, which were striking and obvious to the senses, the results were positively felt and observed. Chemistry, having to enter more into detail, and (if I may use the expression) exhibiting the arcanas of nature, required more patient research and abstraction.—However satisfied we may be that the science of Chemistry was only known in modern times, still as I design to occupy your attention for a short time on the history of this science, a few passing remarks regarding the opinions of its origin, will not, I am persuaded, be amiss. By some, it has been considered an emanation from the Deity—others ascribe to Vulcan, who is identified with Tubal Cain of holy writ, the honor of the invention. Stahl imagines that the Golden Calf spoken of as being ground down and decomposed by Moses, was effected by Liver of Sulphur—(Sulphurettum Potassæ,) which is evidently a Chemical process. It has been supposed that Jason's enterprize to Colchos, so much celebrated by the poets, produced nothing but a book written on parchment, containing the Alchemical Secrets. By some, Œsculapius is supposed the inventor—by others, Hermes, (to whom the invention of the first principles o. natural philosophy was ascribed,) and it was for some time,

consequently designated the Hermetic art. All these conjectures deserve to be mentioned, only as they exhibit the propensity in every age to speculation upon slight causes.

That many practical principles of Chemistry were early known and applied, admits of no doubt; but whether the science of their operations was known, is very much to be questioned. The Egyptians were well acquainted with many important Chemical processes. They made glass and coloured it—they knew many salts and alkalis, and their art of embalming their dead is satisfactorily tested. "Yet with all this" observes a late celebrated writer, "they may have been wholly ignorant of Chemistry, and accordingly we cannot discover that these arts were practised with any knowledge of their principles, or were regarded as connected by any relations under one department of science." It has been urged, however, that the Chemical works were destroyed by the jealous tyranny of Diocletian—and thus we are unable to judge how far their knowledge had extended. It might very justly be urged on the other hand, that if these scientific principles did exist, the Jewish Rabbis would have been acquainted with them, and the edict of the Roman Emperor to have all these works destroyed, even if his orders were fully executed, could not possibly have destroyed a knowledge of these principles. At the same time, says Gibbon, "that Diocletian chastised the past crimes of the Egyptians, he provided for their future safety and happiness, many wise regulations, which were confirmed and enforced under succeeding reigns. One very remarkable edict which he published, instead of being condemned as the effect of jealous tyranny ought to be applauded as an act of prudence and humanity. He caused a diligent search to be made for all the ancient books which treated of the admirable art of making gold and silver, and without pity committed them to the flames, apprehensive, as we are assured, lest the opulence of the Egyptians should inspire them with confidence to rebel against the Empire. But if Diocletian had been convinced of the reality of that valuable art, far from extinguishing the memory, he would have converted the operation of it to the benefit of the public revenue. It is much more likely that his good sense discovered to him the folly of such magnificent pretensions. and that he was desirous of preserving the reason and fortunes of his subjects from

the mischievous pursuit. It may be remarked, that these *ancient books*, so liberally ascribed to Pythagoros, to Solomon or to Hermes, were the pious frauds of more recent adepts. The Greeks were inattentive to the use or abuse of chemistry. In that immense register, where Pliny has deposited the discoveries, the arts, and the errors of mankind, there is not the least mention of the transmutation of metals; the persecution of Diocletian, is the first authentic event in the history of Chemistry."

Alchemy, from which the science of Chemistry emanated, had for its object the discovery of what they called the philosopher's stone—by the agency of which they were to extract gold and silver from the baser metals. The hypothesis was, that gold and silver were the base of every other metal, combined with some gross substance, which changed their character and properties, and they believed that if they could discover the philosopher's stone that they would be enabled to extract these pure metals from their connexions. In order to obtain this much desired kalon, they experimented upon various substances. Analyses consequently took place, and a knowledge of the principles and properties of many bodies. These individual facts emanating from a vain search after an unattainable object, became multiplied and numerous, and in the progressive improvement and civilization of ages were philosophically viewed and applied. How far the Egyptians were concerned in this pretended art, you have already heard. The Arabians were great pretenders to this as well as other mysterious arts. Astronomy and Alchemy were practised by the same individuals, and the influence of thepretenders of these arts, we know, were,great even over their monarchs and nobles—and that their decisions often influenced the destinies of nations as well as individuals.

In proportion to the credulity of men, became the extravagance of the Alchemists' pretensions. Nay, Alchemy like the wonderful lamp of Aladdin, which by friction, produced all the wealth and splendor of creation, was to effect every thing that was extraordinary or magnificent. The baser metals were not only to produce the nobler ones—but diseases, the most appalling and obstinate were instantaneously to vanish at its magic torch, and every thing, whether natural or supernatural, were to be in a greater or less degree subjected to its influence. Their knowledge was a mystery, only to

be obtained by a long and painful devotion to their follies and absurdities. Such magnificent pretensions could not be resisted by people too ignorant to observe its follies and impossibilities, and the contagion became universal.

The Arabians are the first whose works on Alchemy are known. Many writers have been mentioned as being authentic which are condemned by the critically learned as spurious. Our first authentic source is Geber, an Arabian, who flourished at the end of the seventh and beginning of the eighth century. He has left many works behind him, which, according to those who have read them, are plentifully intermixed with fanciful notions and absurdities. He appears among his other wonderful discoveries, to have found out a means of converting age into youth. Thus, he says, "Elixir Rubeum omnes infirmitates chronicas de quibus medici desperarunt, curat, et facit hominem juvenescere ut aquilam." In the tenth century, Albrucasis and Rhazis, Arabians, cultivated pharmacuetical chemistry, with some success, upon whom Avicenna, a physician of great celebrity among the Mahommedans,is said to have improved. He classified the earth's salts, inflammables and metals. He was, according to his biographers, a man universally learned, and considered of great skill in medicine. In that age, and several ages succeeding, the progress of knowledge was much impeded by a few pretending to the attainment and perfection of every species of knowledge. He was, it appears, master of every species of knowledge which he undertook, and his assiduity, according to his own account, must have been very great. "Whenever I was puzzled," he observes, "about any question, or could not find the middle term in a syllogism, I went to the mosque and humbly poured out my prayers to the Creator, that he would be pleased to make plain to me what appeared abstruse and difficult, and returning home at night, I set a lamp before me, and applied myself to reading and writing, &c. and so often as I was overcome by sleep, or found myself faint, I drank a glass of wine to recover strength, and then returned to reading again: If I slept ever so little, I dreamed of those questions, so that the reason of many of them were made known in my sleep."

At this period the Arabians and other destroyers of ancient learning, were themselves the most learned and enlightened, and it is somewhat singular, that the very nations

which regarded them as barbarians, were, in a manner, indebted to them for a revival of learning.

At this period, the European nations were established under feudal governments, and had their minds more directed to the operation of arms than of learning, and the perpetual quarrels among the chieftains themselves, and between them and their liege lords, kept them in continual agitation, and their estimate of things being according to their immediate use, every thing was regarded as insignificant, except prowess in arms.

Their feelings and dispositions were altogether warlike, and the Popes, working upon their vanities, passions and inclinations, produced that prodigious enthusiasm and spirit of emulation, which was exhibited against the enemies of Christ and the Cross. During these so much celebrated crusades, it has been believed that a knowledge of Alchemy was obtained from the Barbarians, as they were called, and introduced into Europe. Such great rewards, as a knowledge of Alchemy was to grant its pursuers, could not but obtain many disciples among a people, warlike, ignorant and indolent, who despised the more certain but slower means to wealth. The chieftains would encourage its pursuit from a hope of aggrandisement and power, and the investigators would be zealous and numerous, from the power it gave them over the fears, passions and credulity of men. In consequence, France, Italy, Germany and England, were overwhelmed with searchers after the philosopher's stone, and the priests having engrossed all other learning, and being remarkably fond of every thing that was imposing or mysterious, studied with avidity, an art which professed wonders no less than supernatural.

The first Europeaa disciple who distinguished himself was Albertus Magnus, a Dominican friar, afterwards Bishop of Ratisbon, of the twelfth century, who taught at Cologne the chemical art, published works and from his skill was imagined a magician. Roger Bacon, a monk and an Englishman, about the same period seems to havebeen not only generally learned,but to have made many important discoveries. "Many inventions are ascribed to him" says Fourcroy, "any one alone of which would have been sufficient to have rendered his name immortal. Among these are his camera obscura, the telescope, gun powder; he is affirmed to

have made a self-moving chariot, a speaking head, a flying machine." There is no question of his having been a man, not only of extensive erudition and ingenuity, but greatly beyond the age he lived in—and the farcical stories related of him, but evince the credulity and folly of the age. A man of his extensive acquirements, we would naturally conclude would excite a jealousy among his brethren—and we discover that he was accused of heresy and employing magic, and therefore imprisoned. Boerhaave on the authority of Borrichius and Borellus asserts, that in his work, "De Arte Chymiæ," there are a great many important observations and discoveries, the credit of which is given to modern authors

Arnaud de Villa nova, a French physician of eminence, was likewise a great proficient and applied some of the chemical preparations to medical purposes. He was a man considered of great learning and high reputation, but was like too many of his cotemporaries, filled with extravagant and preposterous hypotheses. He imagined himself a great astrologer, and predicted, with much gravity, the destruction of the world at some period of the 14th century.

He was followed by his pupil Raymond Lully, who was acquainted with many of the acids—and particularly aqua-fortis. (nitric acid.) His arrogance and presumption was great; he pretended to have made gold from the baser metals, and one of his pupils declared that he saw a coin in the Tower of London which was struck from gold alchemically made by Lully. I believe he was the first that publicly gave out the preposterous idea of an universal remedy.

About the middle of the 15th, and beginning of the 16th centuries, the alchemists began to break down the objections made by the disciples of Galen, to certain preparations, of their's. The minerals and their uses being unknown, were consequently not recommended by Galen; and his followers were either too timid to use these mineral preparations or contemned them because they were recommended by men given to extravagance and false pretensions. The alchemists however determined to make use of them, and the success attending the use of antimonial and mercurial preparations, as well as opium, condemned by Galen and his followers, as being cold in the fourth degree, gave them great reputation, and finally drew the attention of the more impartial and enter-

prising men who adopted their remedies; and contemned their extravagance, vanity and absurdities. One of the most prominent of the alchemists of this class was Basil Valentine, a German monk, who published a pompous work, denominated "Currus Triumphalis Antimonii," which although, as we would naturally anticipate, contained a great many absurdities, had many antimonial preparations which were highly, and as experience has taught us, justly extolled and recommended. He but opened the way for his more celebrated successor, Paracelsus. The character of this man was so extraordinary and had so much influence upon medical opinion, that I am persuaded, a short account of him will not be regarded as improper or misplaced. He was born in the village of Enseilden in Switzerland, of reputable parents—his father was a physician of respectable standing, from whom he received a bias for medical science, and instructions in that branch of knowledge. Having caught the enthusiasm of attaining a knowledge of alchemy, he was placed under Trithemeus, abbot of Spanheim. Learning every thing that was known by his master, he then placed himself under Sigismond Faggerus to whom he acknowledges himself indebted for many secrets. His passion for knowledge increasing with his years, he travelled over every portion of Europe, asking and receiving instruction from old nurses and barbers, who were then assimilated with the surgeons, and of any others from whom he could obtain it.

In his 20th year, he considered himself pretty nearly master of all the facts then known. He was about this time taken prisoner by the Tartars during his travels, and carried before the Cham, who treated him with kindness on account of his vast attainments, and eventually he was sent with that Prince's son on an embassy to Constantinople, where he declares he found the great secret of the philospher's stone.—While among the Tartars, he had great opportunities of improving in surgery, from attending various seiges and battles. On his return to his native country, his celebrity had become so great, that the magistrates of Basil prevailed upon him to accept of the professorship of alchemy, by the offer of a high salary. He was the first who publicly taught alchemy. He continued disseminating his opinions and gaining proselytes, until a ludicrous event put an end to his professional duties and finally his life. A noble cannon who had

been seized with a severe cholic and given over by his physicians, promised Paracelsus one hundred crowns if he cured him. Paracelsus accordingly administered three opium pills which completely relieved him. On demanding the price of his cure, the Cannon facetiously remarked that he could not think of giving one hundred crowns for the administration of only three mouse dungs.

Such levity, ingratitude and breach of trust so exasperated our phisician, that he not only abused him, but brought him to a court of law, when the judge likewise deeming the price rather great for the article given, adjudged but a trifling compensation. This doubly aroused his indignation, and in his anger, he gave loose to expressions which were considered treasonable, for which he had to fly for his safety. From this time he became a travelling physician, giving loose to his passions and appetites. He became filthy and intemperate, and died at a public tavern in his 48th year, in despite of his elixir proprietates which was to prolong his life indefinitely. In wild and extravagant notions and presumption in avowing them, Paracelsus was but a mad man. Many of his assertions emanate from a disordered mind. Yet many of his views of medicine were sound, rational and just—and amid all his errors, follies and absurdities we must grant him much credit for breaking down the extrvagant devotion of physicians to the opinions of Galen and Avicenna, and elevating Hippocrates again to that estimation and respect to which his experience and discrimination entitled him. His free use of mercury, antimony and opium, and the success attending them, gave them that reputation which they justly merited. In the extravagance of his views, and greater extravagance of his pretensions he was not very different from his cotemporaries, or of some moderns.

Many of his views are so eccentric that I may be pardoned mentioning two of them. It was laid down by him that there was an intimate analogy between man and the world, and that particular parts of the world have an influence on particular portions of the human body—and that in seeking a remedy, the substance should as nearly as possible be assimilated to the part affected. He likewise asserted "that our first parents before the fall, had not the parts necessary to generation, but that they protuberated afterwardslike a Scrophelous tumour from the throat. To say any thing more of

Paracelsus, I would deem impertinent. With all his faults, follies, and pretensions, he was a great promoter of medical science,and many things said against him,must not too quickly be credited.

The next and last of these alchemical enthusiasts, was Van Helmont, a gentleman of fortune, of great euridition. According to himself he first studied philosophy and the sciences then known, and finding them but a tissue of affectations he refused to take his degree of M. A. He then studied moral philosophy which he found no better. He then read diligently every author nearly extant on medicine, which to use his own words was to the tune of "six hundred."

At length after all his reading, he came to the mortifying conclusion that there was more parade than real knowledge in medicine. He was like his predecessor Paracelsus, a vehement opposer of the doctrines of Galen and Avicenna, but in time opposed those of Paracelsus likewise,and al' others,declaring,that a knowledge of the art of healing,emanated from the Deity, and could be obtained only by inspiration. He therefore quit reading and took to prayers. He practised without reward, and generally either quickly relieved,or dispatched his patients.

Had Van Helmont lived in a more enlightened age when the ardour and enthusiasm of a strong imagination, could be curbed by reason and reflection, he would have been highly eminent, as it was (although evidently according to our ideas mad on many points as most of those who pretended to learning in his day were) he has left some very ingenious and intelligent remarks on many subjects worthy of perusal and consideration. Among other things he was the first who made suggestions regarding the gases.

In the 17th century, civilization and improvement extending—education became more general, and men began to withdraw themselves from the illusions of fancy, to the study of facts. The splendid and fascininating theories of the visionarists were gradually subverted by the progress of knowledge. Enquiry and research succeeded hypothesis and enthusiasm—and philosophical septicism—unbounded credulity. The light of philosophy was beginning to dawn, which illumines nearly every civilized portion of the globe.

For this great and important reformation in the disciples of science and philosophy, mankind are materially indebted to

Bacon. His masterly review of knowledge is perhaps, (considering the darkness and indistinct ideas of the philosophers of his age) one of the greatest efforts of the mind ever exhibited to the world, and the consequences which ensued from his writings and investigations have been of incomparably greater advantage to the human race, than the efforts of any other man. In his introduction to his work "De Augmentis Scientiarum," after examining the different causes which have retarded the sciences, he quaintly remarks, "Upon the whole men do not hitherto appear to be happily turned and fitted for the sciences, either by their own industry or the authority of authors; especially as there is so little dependence to be had upon the common demonstrations and experiments; whilst the structure of the universe renders it a labyrinth to the understanding; where the paths are not only every where doubtful, but the appearances of things and their signs deceitful and the wreaths and knots of nature intricately turned and twisted." This sufficiently elucidates the want of true philosophy in his age, and the immense march of science and philosophy since that time. A general inclination to the investigation of truth seemed now to be disseminated.—Liberal views and feelings began to exist, and the laborers in knowledge united together in bodies to give the result of their researches, and have their views and discoveries examined by each other, before being promulgated to the world. This had a powerful influence in the progression of truth.—Three important societies were established soon after each other. The Academy del Cimento under the patronage of the duke of Tuscany, the Royal Society of London, and the Royal Academy of Paris.

Chemistry now began to assume a rank among the sciences—while alchemy with all its vile pretensions and preposterous mysticisms was exposed and contemned. Poverty and contempt fell on the mad searchers after the philosophers stone. They excited the satire of the poets, and the vengeance of the civil institutions. On the Continent the horrors of the Inquisition were threatened them—and in England they were subjected to capital punishment.

These concurrent causes, checked and ultimately destroyed the miserable bondages of Alchemy. "Philosophy," says Gibbon, "with the aid of experience has at length banished the study of alchemy, and the present age however desirous

of riches is content to seek them by the humbler means of commerce and industry.

Individuals devoted to science having thus laid the foundation upon which so magnificent an edifice has been erected—the laborers became numerous, and the collective talent and zeal of the learned, gave strong and just hopes of improvements, which we have seen realized. In England, Boyle, Hook, and Mayow made among other researches, many interesting ones on aerial fluids, which were disengaged, in chemical combinations, and shewed the necessity, for atmospheric air, in the combustion of bodies—principles which we will find were afterwards made the basis,of a splendid and predominant theory. At the same time Homberg Geoffrey and the two Lemerys were no less distinguished and successful in chemical researches on the Continent; and Newton independent of his vast discoveries, and explanations in mechanical and natural philosophy, contributed greatly to chemical enquiries. In his explanation of the laws of attraction, and the action of large masses of matter, at immense distances he inferred that a similar priciple operated between the integrant particles of matter, at insensible distances, which has given rise to the theory of of attractive forces, which explains the various combinations and decompositions of bodies, that are so beautifully exhibited through every portion of the earth ; yet although so material a contributor to chemical science, his splendid discoveries in Natural Philosophy, and the simple but sublime system which he formed, attracted universal admiration among philosophers, and abstracted their attention for a while from, and retarded the progress of Chemistry. "These objects of the Newtonian philosophy," observes the distinguished Davy, "were calculated by their grandeur, their simplicity, and their importance, to become the men of the most distinguished talents; the effect they occasioned on the scientific mind, may be compared to that, which the new sensations of vision produced on the blind receiving sight; they awakened the highest interest, the most enthusiastic admiration, and for nearly half a century absorbed the attention of the most eminent philosophers of Britain and France."

Although Chemistry had progressed considerably from the researches of scientific men—still the facts thus accumulated were not arranged under any regular system.

"The chemists" says Dr. Murray, "preceiving the importance of their researches in leading to a constitution, of bodies began to advance different views; the chemical agents which they had discovered to be most general and powerful in their action, they naturally considered as the elements of matter; and hence arose their speculations with regard to salt, sulphur, and mercury, water and earth, as elementary principles.

Beccher, reviewing these various speculations and opinions, endeavored in his "Physica Subterranea" to bring them under one system. He laid the basis for the splendid theory of Stahl, which succeeded. He maintained that "the properties of combustible bodies, and particularly their inflammability depend upon a common principle, Inflammable earth, as he named it; and fire or burning he considered as the effect of this principle brought into motion. Stahl so far adopted these ideas, as to suppose the existence of a common principle of inflammability; but he regarded it simply as the matter of heat and light. He gave it the name of Phlogiston, or Pure Fire. Combustion he considered as the evolution of this principle, whence the production of light and heat which attend it; the substance which remains after the combustion he supposed to be the base with which the phlogiston had been combined: having lost this principle, it is of course no longer inflammable; but if it receive it from another inflammable substance, the former regains inflammability, which the latter looses. Stahl extended these views to the other cases of chemical action, in which changes are produced analogous to those of combustion, and thus formed a system which was extensively connected with the details of the science." This theory founded evidently upon the assumption of a principle of which he was ignorant—still by its simplicity, attracted universal attention and was quickly adopted by all the Chemists. It is singular that Stahl, so eminent and generally learned, should have neglected the hints thrown out by the researches of Hooke, Mayow, and Boyle, of the indispensable necessity for the presence of atmospheric air in the combustion of bodies. Assumption of the first principle, is however much easier than its proof, and this being ceded to him, he remained satisfied without enquiring into its truth.

While Beccher and Stahl had advanced these opinions

Geoffrey attempted to elucidate the relative attractive forces of bodies, aud Boerhaave, the Hippocrates of his day, published a systematic work, in which all the facts were arranged, and explained, with much judgement and fidelity.

Chemistry now began to assume considerable importance in the eyes of men. The important application of many of its facts, and the fascinations which it held out to enquirers, necessarily attracted great attention. Chemical professors were connected with all the learned Universities, and its principles became more generally diffused and understood. Its application to the Arts and Sciences were gradually developing themselves, and its explanation of some of the sublimest and most profound operations of nature began to be observed. Philosophers throughout Europe, directed their attention, and studied with ardour this interesting pursuit.—

Dr. Black as modest as he was philosophical, produced by his discoveries a revolution in Chemical science, and established a new department—Pneumatic Chemistry. In experimenting on magnesia he discovered that a gaseous body escaped, and a residuum different in quality and less in weight remained. This subtle fluid became afterwards the source of enquiry, and in this manner, arose the interesting facts of the reaction of gases with bodies giving rise to their different properties and powers. These early researches were extended by Cavendish. Doctor Black likewise explained the more profound and interesting doctrine of latent heat, which has given rise to some of the most important applications and results. These important discoveries of Dr. Black, gave a new direction to the enquiries and researches of chemists .In England, Priestley investigated with success, the composition of many bodies and detected their gaseous principles. He discovered oxygen, one of the ingredients and vital portion of the atmsosphere, while at the same time Scheele, of Sweden, with no advantages except his talents and industry, discovered the same principle, and each justly shared the reward of so splendid an addition to Science. These important and philosophical researches were reviewed by Lavoiser and confirmed by his own experiments. A philosopher of extensive views and powerful intellect, he surveyed and contrasted the various opinions and results, and produced his theory which finally subverted the doctrine of Stahl, and is now predominant. In place of Phlogiston, of

which no one could explain the existence, he proved that oxygen was the source of combustion, and that no body could burn without its presence; he likewise proved that it was the acidifying principle of bodies,and in fine that it was an all pervading principle which entered into the composition of all bodies. This beautiful and just theory which was confirmed by further researches with some slight exceptions, was vehemently opposed by the followers of Stahl, and gave rise to laborious and sometimes intemperate discussion. The older chemists could not reconcile it to themselves to yield up those opinions which they had so long believed and thought to be true. They forgot or diregarded the important fact, that Science is but the development of truth and what may appear just under our limited kuowledge, by further researches may be proved altogether erroneous. They forgot likewise that the true philosopher, like the emblem of justice, should lean to neither side, but that which is proved true, disconnected, wholly with dogmas and preconceived opinions. To be slow in adopting a theory, is an evidence of true philosophy, but an obstinate and persevering adherence to a theory in opposition to facts which clearly subvert it, evinces but too strongly the influence of prejudice and want of true philosophy. Truth, however, prevailed and the theory of the unfortunate Lavoiser, the victim of sanguinary faction, triumph ed.

In reviewing the progress of knowledge, we will discover, as they advance successively some master genius subverts the dogmas of those who succeeded,and each in their turn become the despots of the scientific world. The mind is prone to submission, and the darker the age, the greateris the submission. It is curious to mark in the unenlightened ages of Europe what a sacred regard was paid to authority, without entering into the merits of those authorities, and such, their servile devotion,that to doubt or any manner question them,was almost as sacrilegious as scepticism in religion. This miserable bondage of the mind with which mankind has been as greivously affected as with the sword of the tyrant or inquisitoria tortures of the priests, were burst asunder by the power of reason. Scepticism in all branches of knowledge however much contemned by many, is the only safe and true means for the attainment of truth. Enquiry and research (from this state of mind) necessarily

follow, and hypothesis and subtlety however specious and fascinating become duly examined and as correctly rejected. "Credulity in respect of certain authors," observes the incomparable Bacon, "and making them dictators instead of consuls, is a principal cause that the sciences have no further advanced. For hence though in mechanical arts the first inventor falls short, time adds perfection, whilst in the sciences, the first author goes furtherest and time only abates or corrupts. Thus artillery, sailing, printing, &c. were grossly managed at first: but received improvement by time; on the contrary, the philosophy and sciences of Aristotle, Plato, Democritus, Euclid, Archimedes, &c. flourished best in the original authors and degenerated with them"

In addition to these great improvements in chemical science many others were promulgated. Berthollet, Kirwan, and Richter, studied the doctrines of attraction and threw considerable light on this interesting subject—at the same time Irvine and Crawford pursued the discoveries of their instructor Dr. Black, and added much to the phenomena of heat. Chemistry now took the lead among philosophers—it embraced so many important considerations, and elucidated so many different branches of knowledge, that it became universally the study of professional and scientific men. Its aid is required in the explanation of the phenomena of animate and inanimate bodies, and its principles are applied to all the details of life.

Thus, agriculture, medicine, mechanics, and natural history, all are indebted to Chemistry for the explanation of their most interesting phenomena. The science as you well know is now generally studied, and is an indispensable branch of knowledge to the scholar, and philosopher. I will not intrude upon your patience by entering into a detail of its progress, since the commencement of this century—for they are embodied in the chemical books of the day. Permit me however to state, that of all systematic writers, none on Chemistry have left so splendid a monument of their industry and talent as Dr. Murray—and it is much to be regretted, that his system of Chemistry, the first among all literary or philosophical productions, should be as it were unknown in our country. It is a work which would enrich every library, and cannot be read without instruction and the highest degree of admiration. In commending thus the late

Dr. Murray, decidedly the greatest lecturer of this age, I mean no disparagement to others, but to pay a tribute of respect to the memory of a philosopher and chemist, who deservedly stood preeminent in this enlightened age. I have thus occupied your attention with a summary view of the origin, rise and progress of Chemistry, trusting to your indulgence, and earnestly hoping that the study in our growing and rapidly extending country may be universally disseminated.

ART. II.

Some account of the WINTER EPIDEMIC *of* 1815—16—17, *as it appeared in Salem and Claremont Counties, Sumter District, S C.—by* JAMES HAYNSWORTH, M. D. *of Sumterville.*

EARLY in Novembor, 1815, an Epidimic Catarrh, or Influenza, appeared in this place and its vicinity, which continued most of the winter. This was a light disease, endangering the lives of those persons only who were far advanced in life, or predisposed to pulmonary affection, and requiring for its cure, nothing more than the usual treatment for Catarrh. So mild was it, that some of our physicians, and even the farmers of the neighborhood, were wondering at the want of suceess of the Williamsburg faculty in the disease raging in that district, attributing to them improper management, on account of the frequency of its fatal termination.—They subsequently learned that our uniform success was the consequence of our having a Lilliputian, instead of an Hercules to combat with; for in truth, the disease prevailing there, was of a formidable and deadly character.

I had no opportunity of seeing it till sometime in January, 1816, when it appeared in one of the counties constituting Sumpter district, denominated Salem. This county is separated from Claremont by *Scape Whore*, one of the principal streams of Black River, along which river the disease had gradually progressed from Williamsburg, in a northern di-

rection, till it arrived in the latitude of this place. Its ravages were for some time, exclusively confined to the east side of the river; afterwards however, it appeared on the west side: but never as yet, with the same degree of force.

The most violent cases appeared with considerable regularity, only near swamps and low places, in situations the inhabitants desert, by the middle of summer, to escape the autumnal fever. These cases often terminated in death in forty eight hours, frequently in less time; I have known the disease to terminate fatally in eight hours.

From carefully observing the symptoms and progress of many cases, I am induced to believe I shall imitate what actually takes place in nature, by considering the disease as existing in four different states or grades.

The first, or highest, is the *state of oppression:* This seems to be produced by excessive force of the morbid cause, prostrating the animal powers, and is characterised by great internal anxiety and distress, manifested by sighing, and difficult respiration, which is slow and deep, natural as to frequency, and laborious; or frequent and short, resembling the panting of a dog after a long chase. This state is further characterised by a pulse generally small, feeble and quick, but not frequent, sometimes morbidly slow and intermitting; and by a preternatural coolness of the extremities and whole surface, which is often deluged with a profuse glutinous sweat. The muscular strength is seldom much impaired in this state. I have seen patients get up, without assistance, not an hour before their death. Acute pain rarely accompanies it, though a dull kind of pain, and sense of weight and confinement in the præcordiac region, are constantly complained of. The tongue rarely has a coat on it, but its whole substance is commonly darker than usual, and apparently engorged with blood; this also appears to be the case with the lips, and, in some measure, with the face; I have observed the lips of those who died in this state, purple, almost black, before they were laid out; and have seen spots on other parts of the body, resembling the discoloration which succeeds a violent contusion. The intellect generally remains unimpaired. I had no opportunity of opening the bodies of any who died in this state, but have little doubt that effusion, either of blood, or some other fluid, into one of the important cavities of the body, was the proximate cause of their death. The subjects of this high grade of the disease, were

generally *men*, in the prime of life, especially such as were corpulent, and fond of stimulating potations.*

In the next, or second state, the morbid excitement comes down to the point in which pain is felt; and, accordingiy, in it, very severe pains occur; they are occasionally confined to the breast, head, back, or limbs, but oftener occupy two or more of these situations at the same time; sometimes the pain commences in the head, and then leaving its original situation, occupies successively the throat and the breast, and again, a reversed order of translation occurs. The pulse though not full, is frequent and tense, the skin warm, often hot and dry, the thrist great, the tongue moist, and after the lapse of twenty-four or thirty hours, covered with a white coat, which gradually becomes brown; the urine high colored, and in many cases, the face flushed. With some, this state of the disease begins in the form of violent tooth-ache; in others, with excruciating pain in a remoter part of the body, as the knee of one side, the ancle, the great toe, or the thumb; indeed, during the height of this all-powerful Epidemic, the slightest pain or deranged condition of any part of the system, justly created alarm.

The *third*, is a still milder grade, and differs from the second, chiefly in the absence of pain, and in being attended by a stronger, less frequent pulse, and more equable circulation; vigorous action, is perceptible in all, even the smallest sanguiferous vessels.

The *fourth* and last, is the *typhous* state of the Epidemic. This is sometimes an original form; but oftener one of the other grades run into it. When original among white people, it occurs in families where the survivors are laboring under the debility induced by unremitted fatiguing attendance on the sick, including irregular meals, want of sleep, night watching, &c. and when, from the loss of near relatives, and steady progression of the disease, great mental depression exists. Upon negroes, debilitating and depressing agents

* Since writing the above, I have examined the bodies of two negroes, a man and his wife, both of whom died of the disease the same morning: the man with four days, the woman with twenty-four hours illness. The lungs of the man were in a state of high inflammation, and adhereing to the pleura all round; the heart appearad inflamed, and there was near half a pint of yellowish semi-transpaunt fluid in the cavity of the pericardiam; his liver was nearly double the common size, but natural in color, and upon making an incision into it, I could discover nothing morbid in its structure. The lungs of the woman, whose respiration during her sickness was short and panting, were apparently healthy, but the blood-vessels of the heart were turgid with dark blood, and a pertunatural quantity of fluid was found in the pericardium; her liver was prodigiously enlarged, so as to stretch quite aeross the abdomen, and displace the stomach, pressing it up, under the false ribs of the left side.

more constantly operate, and therefore, it is not to be deemed strange that originally typhous cases frequently take place among them. Whether original, or consequent to another state, this stage of the disease does not differ from ordinary typhus except in the following symptoms, not always met with in the latter; pain in the head or breast, a sore throat, a profuse influx of tough mucus into the throat, a great disposition to local gangrene. One, or more of these occur in every case. Gangrene frequently occurs, I saw two cases of gangrene of the scrotum; one, of the extremity of the rectum, and skin covering the glutei muscles; one where mortification succeeded the application of blisters, and another in which small vessels on the forehead and breast, filled with a yellow serum, extended rapidly by means of gangrenous disorganization, and ended fatally. Small bloody looking vessels, were the usual precursors. As it is of great consequence to distinguish the state of the oppression from this state, for which it has been mistaken, I will here set down what I have observed them to differ in; The state of oppression occurs in the beginning of the disease, and brings the patient to the point of death almost immediately. In it, a morbid fulness of the face, and in the worst cases, a purple color in it,and the whole body,from the beginning and stagnation of the blood is apparent. The muscular strength continues sufficient to enable the patient to move as he pleases in bed, and to rise, for the purpose of taking medicines, or visiting the close stool. The surface, and perspiration are cool or cold: the tongue, moist, and not often too frequent. The typhous state, on the contrary, appears in the decline of the disease, or when original, creeps on slowly, so that it will sometimes have made considerable progress before the patient will confess himself sick. In it, the patient, from long suffering, is much emaciated, and muscular energy so far gone, that he is often incapable of turning himself in bed without assistance; it is even dangerous for him to attempt rising. on any occasion. The surface is generally warm, often dry and hot, cold, only when the danger is extreme; the tongue almost always dry in the middle, often so completely destitute of moisture as to present the appearance of having been boiled; pulse typhoid, small, weak, frequent, and quick.

Beside the symptoms characteristic of the several states enumerated above, there are some which appear indiscrim-

nately in them all: They are, a chill in the commencement; a fever unattended by the intermissions or remissions, which occurs in most fevers; but a fever which, with nearly even pace, constantly progresses till death closes the scene, or a solution of the disease is effected; a troublesome cough; immense torpor and insensibility of the stomach and bowels; an extraordinary secretion and flow of bile, engorgement of the bronchial vessels and throat; the appearance of petichia and other eruptions on the skin; the enlargement of certain glands, particularly the parotid; and delirium.

The torpor of the chylopoietic viscera was always remarkable, and the danger was in proportion to the degree of torpor; in the worst cases it was greatest. The same remark applies to the preceding chill; if it was severe, you might look for danger to follow. Physicians who saw cases of the disease previous to January, have informed me that bile was not met with, in any considerable quantity, till the approach of Spring and warm weather; with my patients, however, the appearance of bilious matter was a prominent symptom, and considering the season of the year, it is astonishing how much was discharged. The patient generally recovered when bilious, and especially when black stools, came freely away. An eruption, corresponding with the description given by authors, of the nettle rash, sometimes appeared on the skin: and when it could be kept there, was favorable. The itching was so intolerable, that I have had friction with a flesh brush employed to allay it. I regarded the case as nearly desperate, when proper petechia, or the bloody vesications denoting the approach of gangrene, appeared. Glandular swellings occurring early in the disease, were apt suddenly to disappear, and then the patients immediately experienced great distress, and the symptoms of the state of oppression; in the decline of the disease, they often ended in suppuration; and if the patient had stength to bear the discharge, proved critical and salutary. Delirium occurs in the typhous state most frequently, and augurs ill; I have seen it obstinate, for several days before the death of the patient.

Were I called upon for pathognomonick signs, whereby certainly to distinguish this dreadful disease, so multifarious in its forms and symptoms, I should confess the difficulty of selecting any such; but would name the insensibility of the intestinal canals; the continued unvarying fever; the prodigious bilious secretion; the engorged state of the bronchial

vessels and throat; the glutinous perspiration: and the tendency to gangrene, glandular enlargement, and cutaneous affection, as coming nearest those sought for. They are, it is true, equivocal, and at another time, most of them, might accompany a bilious fever, or pleurisy: The skilful physician however, having reference to the established medical law, that no two diseases of unequivocal force can long exist together in the same place, will be at no loss in his diagnosis.

With regard to the origin of the epidemic, much diversity of opinion exists. Some imagine it to be the product of contagious matter generated in the camps during the late war, and propagated through the country by the vetran soldiers. Others attribute it to the atmosphere being highly charged with electric and fiery particles, consequences, as they suppose, of the proximity of comets to our globe some years back. Others, again, without pretending an acquaintance with the particular nature of the noxious principle, content themselves with ascribing the disease to a peculiar state of the air, and its internal qualities.

Without detailing the reasons, I give it as clearly my opinion, that the disease is an atmospheric one, and never propagated by contagion except possibly, when it assumes the typhous form; though it must be acknowledged, its slow progress through the country, its passing by some districts, neighborhoods, and families, and ravaging others, and its disposition, when once it gets into a family, to attack all the members, are circumstances which seem to favor the doctrine of contagion.

Various means were adopted to prevent an attack of the disease. Some scrupulously and unprofitably avoided all intercourse with the sick; others were seen frequently inhaling the odour of camphor and other pungent drugs, and burning rosin, &c. in and about their houses; others to divert themselves of fear, and by way of prevention, took grog freely. Those who appeared to be most successful, lived regnlarly, but not very abstemiously, and confined their efforts to avoiding the exciting causes of the disease such as costiveness, fatigue, exposure, &c. I have reason to believe that the liberal use of ardent spirits hastened, in several instances, the approach of the calamity which it was intended to prevent.

Before proceeding to the cure, I deem it expedient to make a few additional observations. Children under teu years of

age, were remarkably exempt from every form of the disease. Females were as frequently attacked as males, by the second state of it, the state of severe pain; bnt not by the other. It moderated in violence by the first of June; but after east winds, and cool weather, cases appeared occasionally throughout the summer. It has imposed some of its symptoms on all the diseases of the year. The cynanche parotidea, is now raging, (in November) and in several cases the swelling has suddenly left the angle of the jaw and the throat, and the patients, with symptoms of the *state* of *oppression*, have been in the utmost danger of losing their lives.—The mumps, or mild influenza, has almost constantly gone before the dangerons disease, and may generally be heard of from ten to twenty miles in advance.

The method of cure.—This must vary in the different states, as our arrangement naturally suggests. These states, however, do not always appear separate and distinct; for with symptoms blending and running into each other, the shade of distinction between the worst cases of a lower, and the mildest of the higher grade, is almost imperceptible. In fact, some of the states are mutually convertible, the one into the other; and in the *first*, or state of depression, coldness, and insensibility, our efforts should be directed to converting it into the *second*, or state of reaction, warmth, and pain.

I will relate the history of a severe case which occurred immediately after the frost in May, to give a general idea of the plan I pursued.

May 16th, 1816.—Was called to visit negro man Sam, about 27 years of age. Found him at 1 o'clock incapable of articulation or deglutition; with preternaturally slow and laborious respiration; mucus rattling in the throat, and the sternum rising near two inches higher than usual, at each inspiration; pulse of the common diameter, but intermitting after every third or forth stroke, and not striking oftener than forty in a minute; eyes red, and when open, rolling wildly; and extremities, and entire skin, too cool. Upon enquiry, I ascertained that he had been indisposed a day or two, but had continued to work in the field till the morning of the day in which I saw him. When complaining of pain in the head, and soar throat, he was directed to confine himself to the house. About 11 o'clock, report was made to his master that he was dying, and he was discovered in the desperate

situation I found him. Perceiving that no time was to be lost, I had recourse without delay, to measures from which I had in other cases, experienced good effects. I sprinkled into a mug of boiling water, as soon as it could be heated, powdered camphor and myrrh, and inverting a funnel over it, placed the small end in his mouth, that he might inhale the ascending vapor. After inhaling it a short time, he coughed violently, and expectorated a large quantity of tough mucus. He was sensible of benefit, breathed easier, and when the funnel was taken out of his mouth to place it over hotter water, manifested great anxiety to get it again. In a few minutes a bath was made ready, and he was put up to the neck in water, so hot, that the attendants could not bear their hands in it. He however appeared not to regard the heat, till just before he was taken out. Upon coming out of the bath, he was wiped dry, and friction with hot flannels employed while sinapisms were preparing, which soon after, were applied warm, to his arms and legs. A large blister was applied between the shoulders, and another to the throat. By this time he could swallow, and I gave him, at one dose, one scruple of ipecacuanha, as much gamboge, two scruples of calomel, and six grains of tartar emetic. Large as this dose may appear, I was obliged to repeat it, before free evacuations could be procured. The sinapisms and medicine began acting about the same time, when the skin warmed, and his speech returning, he complained of very acute pain in his head. The pulse now changed to a frequent and full one, without intermission, and I opened one of the smaller branches of the temporal artery with evident relief. The subsequent treatment, was in every respect, similar to that for the second state, presently to be detailed.

According to my experience, the abstraction of blood, even in the manner of riverius, was not admissible, till after some rise in the pulse and system. Emetics and cathartics were important remedies, the system often rising in proportion as the morbid contents of the stomach and bowels were removed by their operation. The polygala seneka, given to the quantity of a wine-glass full of the decoction every hour, promoted reaction, as appeared from the pulse, and the filling of the small veins and increase of warmth on the surface, after using it. I was afraid of powerful stimuli internally exhibited, but have heard of their proving successful in a few cases, in the hands of others.* External stimu-

* February, 1817. I have lately seen spirits of turpentine, and the decoction of Cav-

lants were indispensable; they afforded relief to the internal oppressed organs, by producing centrifugal determination, and action. When the depression was great, or had existed many hours, it was frequently impossible to prevent death by any known means, as the prodigious mortality this worst form of the diease occasioned, sufficiently evinces.

For the *second state*, the first remedy I shall mention is blood-letting. It acted happily in relieving the pain wherever seated, and diminished the danger of local determination, and of effusion. I observed a strong disposition in the disease to fall, with all its force upon the lungs, throat, or brains, in its decline, if bleeding was neglected altogether, in the beginning; and discovered also, that it was apt to end in typhus, if a large quantity of blood was taken away. I therefore bled, but not profusely; fifty ounces, drawn at three bleedings, was as much as I took from any one patient. I can bear unequivocal testimony to the usefulness of venesection in this state of the disease, and do so the more earnestly, because some have averred, it should never be employed.—In cases when general bleeding could not be employed with safety, and in many where it could, local blood-letting, by means of cupping, was very useful. I have seen the throat speedily relieved by it, and also the pain in the head. Dry cupping, sometimes removed pain.

Next in order, as remedies for this state, but probably first, in necessity, come those medicines which evacuate from the stomach and adjacent abdominal viscera. Those could not be omitted in any case, and the most powerful among them, were most valuable. I generally commenced with an emetic-cathartic dose, similar to that given the negro, whose case I have related; but made it a rule to persevere in giving, till the desired effect was produced, let the quantity required, be greater or less. So insensible were the bowels, that I have given in the space of twelve hours in divided doses, one scruple of tartar emetic, one drachm of ipecacuanha, two scruples of gamboge, and two drachms of the sub. murias hydrarg: and in another case, one drachm and a half of jalap, one drachm of calomel, and two scruples of powdered seneka pulvis antimonialis, and scammony, and yet produced but very moderate evacuations. In the last case, the operation was aided by repeated emetics, and the application of a large blister over the stomach. There appeared to me to exist, in

enne pepper, given during the cold state, with good effect, and have myself given a large quantity of toddy with advantage.

severe cases, a want of the correspondence of action, and synchronous motions, natural to the different portions of the intestinal canal; and in these cases, a large blister to the epigastrium, by equalizing as I suppose, the excitement, was eminently useful. I have witnessed frequent, inodorous dejections for several succeeding days; the patients being all the time sensible that they came from the lower intestines only; and experiencing little or no relief, till dark foeted evacuations were brought from the liver, or vicinity of the pylorus. This done, the usual doses of medicine afterwards operated. In most cases I found it necessary to keep up a constant catharsis, for a week or more, but observed to exhibit smaller doses, and employ milder purgatives as the disease declined. Salts dissolved in a decoction of seneka, I was partial to. Calomel possessed, over every other cathartic, the grand advantage of sometimes exciting a powerful artificial action, which was contrary to, and proved destructive of, that of the disease. Only one case came under my observation, in which the patient died after ptyalism was produced. Whatever purgatives were employed, it was of importance to support the strength by exhibiting soups, &c. freely, during their operation. In general, the drinks were directed to be exhibited warm; but in cases where the skin was hot and day, cold water was permitted for drink; and bathing the hands in cold water, and spunging the face and breast with it, was very refreshing. The heat diminished, and salutary prespiration, often immediately followed.

The solution of the disease was effected, in a majority of cases, by a general perspiration, which sometimes came on spontaneously, and lasted two or three days; by increased secretion from the kidneys; by plentiful expectoration; or by the whole, or any two, acting conjointly. To promote these critical evacuations, was the indication, as soon as the bowels were rendered manageable. I employed for this purpose, one of the following recipes; the first, where the arterial action continued considerable, and the second, when it began to decline, and especially if the symptoms portended that the typhous state of the disease was likely to surpvene.

1. R. nitrat. potass .ij. drachms, tart. antimon. gr. ijj. sub. muriat, hydrarg. dr. ss. M. and divide into twelve doses and give one every second or third hour.

2. R. Pulv, rad. senek, vel serpentar j. drachm, pulv.

gum camphor, nitrat, potass æq dr. j. ch. xjj. un. secunda vel tertia hora.

I did not let these medicines prevent me from giving cathartics if the condition of the bowels required them; but often administered a cathartic in the morning, and in the afternoon and evening, of the same day, several of the powders. I frequently successfully used the camphor fumigation after the disease had subsided for some time, to remove pain not felt before from beginning obstruction, or deposition, in the thorax, or throat. Patients sometimes suffered for want of sleep, and in such cases I exhibited opium beneficially, after the phlogistic state of the disease was past. This was the proper time, also, for the application of blisters, which often arrested the further progress of the disease. The discharge from blistered surfaces, appeared in several instances, to aid the critical evacuations, in conveying from the system, the remains of disease. In every stage, blisters were valuable in removing pains confined to particular parts, if placed over them.

The third state, requires the same treatment as the second: but in it, smaller doses, and milder medicines will succeed.

Treatment of the Typhous stage.—In typhous cases consequent to another stage of the disease, stimulants and tonics, might in general, be immediately employed; but in originally typhous cases it was necessary to precede tonics, by a brisk emetic, and other evacuants. Throughout the whole of the typhous stage, occasional purging, especially with the sub. muriat. hydrarg, was necessary. It frequently brought away horridly offensive matter with great relief. I was in the habit of exhibiting it to restore the secretion, which in health, keeps moist the tongue and internal parts of the mouth. When these parts have been so entirely dry at night, that the patients, without previously wetting them, could not articulate, I have given from five to ten grains of calomel, and found the tongue moist and comfortable next morning. Chewing seneka root, sassafras twigs, cinnamon, &c. contributed to restore the same desirable moisture.

The practice of exhibiting large quantities of the cort. cinchonac, in substance appeared to prove prejudicial by clogging the stomach so as to preclude nourishment. It answered best in the form of infusion with the rad. serpentar, and the tincture. I frequently omitted it altogether, and substituted the following, or similar medicines:

R. Pulv. carb. ferri jj. drachms, pulv. nuc. moschat, myrrh æq. j. drachm, caryoph. drachm ss. M. and ft. pillul No. 80.

Of these pills, two, were given regularly three times a day, and each dose worked down with a table spoonful of the following bitters, sufficiently diluted:

R. Rad. colomb. gentian, j. oz. rad. rhei. cort, canel. alb. rad serpentar. virgin. jj drachms. Spt. gallic. lb. jj. aq font. lb. j. M. fit for use after twenty-four hours infusion.

This method of exhibiting ferruginous, with aromatic, and bitter medicines, I can recommend from repeated experience. I think it peculiarly expedient te adopt it with negro patients who can seldom get, or be induced to take, medicines, regularly, if many doses are directed in a day. The wine, or toddy, necessary, they take more readily. Brandy toddy, sweetened with loaf sugar, and warmed with grated nutmeg, often answered better than wine, particularly if the wine was of an indifferent quality. I have given besides the pills, bitters, and necessary nourishment, a quart of Cognac brandy, made into toddy, in twenty-four hours, and thereby saved the patient. The use of blisters, &c. in Typhus, being well understood, I pass them without remark, mentioning only, that in a case where the pulse had left the wrist, the vital warmth, the extremities, and neither blisters nor sinapisms could be made to act on the skin, I succeeded in rousing it by bathing it in water heated to about one hundred and sixty of Farenheit, then rubbing briskly with hot flannels impregnated with the ol. terebinth; and lastly, by laying the same flannels over the surface to which friction had been applied, and moving hot smoothing irons over them for more than an hour.

I conclude this imperfect account of the epidemic, with remarking, that during convalescence from every grade of it, the greatest care was necessary, to prevent relapses. I have known patients die of the first, second, or even third relapse, induced by what they were inclined to believe very small imprudences.

ART. III.

Case of RUPTURE *of the* UTERUS *and* VAGINA, *terminating in Recovery, with Remarks on these accidents, by* CHARLES ATKINS, M. D.

THE case I am about to offer to the medical public, is, so far as my reading serves me, one of an isolated character, the termination of which goes far in my opinion to settle the old disputed point, whether assistance in such cases, should be attempted by the hand of art or not, and one or two strictures which I shall make after the detail, will I hope, prove not an useless lesson to the unexperienced practitioner in a case of similar emergency.

On the 2d of August, 1819, I was requested to visit Nanny, a black woman, the property of Maj. Wilson Glover, distant six miles from me; on my arrival at the negro house, I learned from the midwife in attendance, that she had been in labor upwards of sixty hours, (there was no white person on the plantation at the time, to which circumstance this long dely in calling for professional assistance is attributed,) and that there was but slight dilatation of the os uteri. The patient herself informed me, that she had been subject to procedentia uteri for many years, and that it was now prolapsed. This determined me immediately upon ocular inspection.—On examination I found the cervix uteri protruded through the os externum to the distance of about three inches, exceedingly constricted, and presenting, to the eye a darkish hue indicative of approaching sphacelus, the orificium uteri was but partially dilated, only admitting, with difficulty, the introduction of one finger. Having satisfied myself that the head of a child presented fairly, and that no time was to be lost, as the woman's strength was considerably exhausted, I began to bring about dilatation by the use of warm fermentations and emollient embrocations to the whole cervix. A patient perseverance in the use of these means produced the desired effect in the course of about one hour; having previously administered a cordial draught, the woman's strength considerably revived, and the pains now became more regular, full and strong. The head of the child descended gradu-

ally, and all in prospectu denoted an happy issue, when to my inexpressible astonishment and anguish, the whole of the protruded cervix gave way on each side of its orificium, making a wound nearly four inches in length on each side, and presenting a most horrible appearance. Laying hold of the shoulders of the child, I gently extracted it, and being satisfied from the feeling of the cuticle, as well as other signs, of its having been for some time dead, laid it aside, and bent the whole of my attention to the mother. On pulling at the funis, I found so much resistance as lead me to examine the external abdomen, from which, together with the touch, I was well convinced there remained another child in the uterus. It being 8 o'clock, P. M. and the woman much exhausted, I left her for the night, under the influence of a cordial anodyne draught, entertaining little hope of her recovery. At 6, A. M. next morning, I called again ; her pains were but slight, and apparently totally inadequate to expel the second fœtus. I therefore began the introduction of my hand, which was quickly withdrawn in consequence of meeting with an obstruction of unusual feel in the vagina, resembling a soft tumor. Again I had recourse to occular inspection, and was surprised to find the fundus of the bladder lying directly in the cavity of the vagina, and much distended with urine. Having no catheter at hand, and entertaining as I have already stated, no hope of my patient'srecovery, particularly as the case from the manifestation of this new accident, presented a more gloomy prospect, I did not hesitate to puncture the bladder with a common bleeding lancet, and in this way got nearly a quart of turbid looking urine. With the fore and mid finger of my left hand, I adjusted the bladder as near as possible in its proper situation, and then extracted in a few minutes the other child, which also exhibited marks of a putrefactive tendency. The uterus in a few minutes began to contract well, and in half an hour a large double placenta was thrown down in to the vagina and removed. My patient now appeared comparatively comfortable and not so languid as the preceding evening. Directed ol: ricini com: jj. ozs. spts. terebinthinæ j. oz. in two equal parts, at intervals of two hours. August 4th. Bowels have been well evacuated, and urine has been freely passed without complaint by the natural passage : has rested badly and is quite prostrate. Pulse ninety-five, small and weak. R.. Spts. œtheris sulphurici ss. oz. spts. lavend. com. j. oz.

aqua pura 12 oz. dose; a wine glass full every two hours.

A thin, offensive and copious discharge from the external parts, evidently proceeding from the uterus, has taken place. No appearance of any thing like a healthful lochial discharge: abdomen soft, uterus appears perfectly and completely contracted.

5th. Patient better, pulse more full and natural, about forty-five: complains of uneasiness about the back and loins, has passed her fœces and urine without difficulty, and takes her medicines and nourishment cheerfully. R. j. oz. ol: Ricini, 20 drops spts. tereb. The stimulating mixture continued. 6th. Patient sleeps much, complains but little, pulse nearly as yesterday. Has passed fœces and urine without inconvenience. Discharge from the os extemum resembles pus, more than at first, being thicker, whiter, and apparently less acid. Directed wine in her gruel; and repeated the stimulating mixture as before. 7th to the 10th. Patient continues improving preceptibly; rests well, takes as much nourishment as is allowable; ordered to day j. oz. ol ricini, and a repetition if necessary. 11th. Cathartic has operated well. Complains mostly of the lumbar region. R. ol; oliv. 4 oz. spts. tereb. jii. laudanum j. fiat linament to be rubbed by means of a flannel on the pained parts four or five times a day. 12th. Pains less. bowels open, pulse natural, discharge very considerable. Directed bark in decoction, and sulphuric acid. 14th. Discharge lessened, more thick and healthy in appearance, excretions natural in appearance and quantity. 18th. Discharge almost gone, patient has for the last two days walked about her house, and sat up for an hour at a time. Directed the bark in decoction and sulphuric acid to be continued for some days, and the ol; ricini if indicated. With these general directions I left Nanny to the care of her nurse, and about five weeks after had the pleasure to receive a visit from her.—She being then able to walk six miles. I have seen her every year since, and know that she is at this time alive.—In constitution, this woman was what the negroes on the plantation called delicate, and had children often.—She was about the thirty-fifth or thirty-sixth year of her life, when the misfortune I have detailed happened to her, and has never bred since. This I think fairly attributable to the partial or perhaps entire closure of the orificium uteri. With respect to the rupture of the vagina, it happened as I ascer-

tained anteriorly, and to the extent of two and a half or three inches, after the bladder was replaced it never again descended, and although I can not determine with any precission at what time the rent of the vagina became consolidated, yet I am inclined to believe it happened very speedily. The woman lives with her husband on their usual terms, which is demonstrative proof that no imperforation or closure of the walls of the vagina has occurred. Quere, was I right in puncturing the bladder? I think not, but the urgency of the case, the deplorable state of the woman, and the firm conviction then existing on my mind that she would die, at the time satisfied my mind, that it was better to do so than to wait until a messenger could be sent to my house for a catheter and return: yet certain I am, that I shall never commit such a rashness again, and from the termination of this case will hold any man reprehensible who would do so, in as much as he must inevitably subject his patient to the danger of urinary infiltration among the abominal viscera, and it is a little surprising that in this case it was escaped.— It is worthy of remark, that I kept my patient constantly on one side or the other, and never allowed her to take posture on the back, and to this cause alone I attribute her escape from urinary enfiltration and its concomitent attendants.— The reader who has followed me through this I trust not useless detail, will excuse a few remarks on rupture of the uterus and vagina, seperately considered, for we have no instance that I know, of their ever before having occurred together.

This accident it appears was known to many of the older practitioners, as Heister, Smellie, Denman and others; but no one of them give such injurious directions respecting its management, as the celebrated Dr. Wm. Hunter. This gentleman considered it an act of wanton cruelty, to disturb a patient who had suffered this injury by attempts to deliver her, so inevitable did he regard her death; a doctrine thus predicated in error was perpetuated by the force of high authority and habit, both in this country and in England until the year 1784, when Dr. Andrew Douglas ventured to break the shackles which had fettered the profession, and delivered a woman whose uterus was torn by turning the child and extracting it by the feet, and he was rewarded for his intrepidity and skill by the complete recovery of his patient, who afterwards bore children without accident or in-

jury, at the birth of one of which Dr. Denman was present. This latter practitioner, whose knowledge and experience entitled him to be considered as high authority on this subject, admits that in general this accident is fatal both to mother and child; yet he says expressly, that he had seen a case in which the woman walked a considerable distance after the accident had occurred, and lived several days: he also relates Dr. Douglas' case as one which ought to induce other practitioners to make the same attempt, but we will hear him speak for himself. "If no other case had been recorded, this would be sufficient authority to render it in future the duty of every practitioner, to attempt without delay, to deliver the patient, and bad as her chance certainly would be, to be strenuous in using all the means which art dictates, to extricate her, if possible, from danger and preserve the child. But for more particular information on this subject, I must refer the reader to an essay on rupture of the uterus, by Dr. Douglas, and to several periodical papers of this time, in which similar cases are related: but from the statements of of these, one cannot help doubting whether the uterus was actually ruptured."—See Introduction to Midwifery, Vol. 2, pp. 43. New York Edition, 1822.

Upon this last paragraph of Dr. Denman's, Dr. Dewees has dwelt with more prolixity than candor, and has endeavored, by a perverted construction of the words of the last sentence, to make it appear that Dr. Denman suspected the veracity of his friend, Dr. Douglass, when in fact, it was only the truth of the statement contained in the periodical publications of that time (many of which were probably anonymous) which Dr. Denman thus questioned. We regret that a gentleman of Dr. Dewees' high standing, should have, in many parts of his essay on rupture of the uterus, treated Dr. Denman, not only with a disingenuous construction of his language, but with unmerited severity.

We come now to a consideration of the question, whether the hand of art should interefere or not in cases, where symptoms denote a rupture of the uterus about to take place.—What are these symptoms? Dr. Crantz says "the belly becomes prominent and tight, the vagina lengthened, and the orifice of the uterus very high; the pains are strong, leave little interval, and do not advance the delivery." M. Levret adds, that the pain the woman suffers is always towards the middle of the epigastric region; that a last effort or violent

leap succeeds to the repeated struggles of the child, which announces its death, and the rupture of the uterus.

With respect to these symptoms, it is scarcely necessary to remark, that every one of them, as enumerated by Crantz, are to be seen in difficult labor, and must therefore be regarded as fallacious: and as to the position of Levret, I conceive that no woman in the pangs of hard labor, could distinguish, whether she felt more pain in the epigasric region than elsewhere; it must like the last struggles of the child be regarded as too problematical to hold as a rule of any certainty, or in any way influence the conduct of the practitioner.

Mr. Ramsbotham says, "rupture of the uterus always takes place suddenly, and generally without any previous warning." And again, "I have before hinted, that previous to a rupture of the uterus, no particular symptom meets the the eye, by which the practitioner is forewarned of its occurrence, so that means of prevention can rarely be taken. The symptoms of that case must be extreme indeed, which can justify the certain destruction of the child by the perforation of the head, under a prostrated labor, in a woman who has passed a living child or children before, or who has passed a dead child without considerable difficulty; upon the mere presumption of the uterus being likely to give way, or upon the possibility of its doing so." I think few men will be hardy enough to assert, however great their experience may have been, that any certain and unequivocal signs can ever manifest themselves, by which a practitioner would be justified in making an attempt to procure premature delivery, with a view to the avoiding a rupture of the uterus: let us however, as it is a subject of the deepest importance, hear a little more testimony on the subject. Baudeloeque says "the greater part of the predisposing causes of the rupture of the uterus being most frequently unknown to us during the course of labor, and that rupture not always taking place in cases where the most apparent of the causes render delivery impossible, it seems difficult to indicate the signs which show that accident is likely to happen, and consequently to lay down the prophylactic treatment." The same author justly remarks, that were we to take as a rule, the indications laid down by Dr. Crantz, and M. Levret, we should frequently trench upon the rights of nature, by performing a delivery which she would have been able to terminate without inconvenience, and therefore that we ought not to flatter ourselves

that in any snch case we have saved the woman a rupture of the uterus. With respect to prophylaxis, the only means in our power is, to procure, by artificial means, as speedily as possible, the extraction of the fœtus, but this we shall find totally inadequate to the ends in view; for we are not without examples of rupture of the uterus occurring in the seventh month, as well as in the ninth. Dr. Ramsbotham in his 77th case, is here exactly in point. The Doctor heads his essay "Rupture of the Uterus under the induction of Premature labor," and tells us that "on Friday, the 25th of October, 1816, the liquor amnii was discharged, on the next day he accidentaliy called at the house to ascertain how his expected patient was coming on, with a medical friend in company, and was told they were just about sending for him; he went up stairs, and found his patient in labor, a fair representation and all things progressing rightly to appearance; as he had no doubt the labor would be tedious, he went down into the parlor to converse with his friend; remained there not mote than fifteen minuets, when he was suddenly summoned to the room, ran up, and found rupture of the uterus had taken place. In a short tfme he delivered with the crotchet and hook, but his patient only survived one hour.—After this, what will the advocates for premature delivery say for themselves. Should such an event take place under the employment of such means? We know well that the violent and sometimes convulsive action of the womb on the child's body,is almost always the only cause of its rupture, for I do not believe as some do, that the motion of the child is ever sufficient to produce such mischief, and if this be the case, which I see no reason to doubt, certainly there is as much reason to dread its occurrence at any time of premature labor, as at full time. Before we dismiss this part of the subject, we will attend to the strong and energetic language of our scientific countryman, Dr. Dewees. "We do not mean to interfere with the conduct of any gentleman, under the apprehension of rupture of the uterus; as we presume under so trying a circumstance, every one would act most scrupulously in the way he thought best; nor should we condemn any man for an error in judgment: yet we should be very far from recommending as a rule of practice, the one suggested by Dr. Douglas, where there was a strong combination of symptoms, which might seem to announce this event at hand; for who, by a forced delivery, can flatter

himself that he has prevented the uterus from lacerating?—Could moral certainty be arrived at by the attending symptoms, our profession would gain much; we could then prevent the rupture, and most probably secure the life of both mother and child: but as this certainty cannot be commanded, and as threatening cases are very common, and the accident comparatively very rare, we cannot feel justified in recommending artificial delivery on the mere presumption of a contingent advantage. We would be the more cautious on this head, from the consideration that, wherever this might be thought expedient from the symptoms, there would also be a risk of producing the accident, the operation proposed to avoid; the waters long drained off, the uterus contracting strongly, and firmly embracing the body of the child; the latter very large, or the pelvis contracted, offer difficulties which the inexperienced can neither appreciate nor anticipate, and the experienced would dread to encounter; and should the practitioner dare the enterprize, and by perseverance on his side, and resolution and suffering on the part of the patient achieve the delivery, can he solace himself, or honestly assure the woman that be has saved her a ruptured uterus?" Having said so much with a view to the prevention of any attempts at the induction of premature delivery, on the more presumptive evidence which might induce the unskilful, the rash or presumptuous to hazard the attempt of premature delivery, with the expectation of avoiding a rupture of the uterus. We shall now proceed to a consideration of the best mode to be adopted when the accident hasactually taken place. We shall confine ourselves here to the consideration of three general modes.

First, To leave the case to nature, making no attempts whatever to relieve the womau.

Secondly, To attempt delivery per vias naturales.

Thirdly, To at empt delivery by gastrotomy, or the cæsarean section.

It was the opinion of Dr. Hunter as we have already mentioned, as well as many others, that it was useless or worse than useless,to attempt any thing to the relief of a woman with a ruptue of the uterus: they considered the death of the mother and child as inevitable, and consequently believed, that any attempts for her relief, could but add to her sufferings, without any prospect of benefit This opinion we have shewn, to have been predicated in error, and perpetuated by

the force of habit and authority, until the year 1784; at which period we find Douglass deliver a woman per vias naturales with complete success. We find Heister, a man of great character and talent, asserting that Rungius extracted a child from the uterus of a woman, so much torn, that the intestines were distinctly felt: yet she recovered. Dr. Hamilton relates another instance of complete and entire recovery, although the intestines issued through the opening of the uterus, and were reduced to their proper situation by him, after the delivery of the child. Dr. Ross relates the case of a woman near Hamburgh, who suffered this accident twice, and recovered both times. Mr. Veite, gives a case of ruptured uterus terminating favorably. Mem. Med. Soc. London. Vol. IV. p. 252.

M. Thibault, relates a case in the Journal de Medicine for 1768, of the very worst description: gastrotomy was performed with entire success to the mother, though too late for preservation of the child. Baudelocque relates that M. Lambron, a surgeon of Orleans, performed the operation of gastrotomy twice on the same individual for rupture of the uterus with entire success to her, though loss of the child; this woman became pregnant the third time, and was delivered naturally of a healthy child. These facts are from men too respectable in our profession to admit of the shadow of doubt. On the contrary, where is the well authenticated case on record, of any woman having ever recovered, when left to the efforts of nature. Not one—and we challenge the adherents of the old doctrine, if any there be, to produce a single well attested instance. We shall now hold any man guilty of a dereliction of duty, who under circumstances holding out the smallest chance for life, shall neglect to give his patient that chance, by a speedy interposition of art. It is true, and it may happen that an accoucher, may arrive at a moment, when the patient is actually in articulo mortis; yet this should not prevent his immediate interference, because the child may be alive, and may be saved by his assistance.

We have now seen that a patient should never be left undelivered to the efforts of nature, and propose our second consideration. To this mode our feelings will always yield the most ready assent; but it is not always practicable. The causes which render it impracticable, are the entire escape of the child from the uterus, into the abdominal cavity, and the contraction of the uterus, or so rigid a contraction of the

uterus on the neck or below the shoulders of the child, as to render it impossible to be extracted ; or perhaps the escape of the placenta through the laceration of the uterus among the bowels. Whenever therefore, we cannot from any cause, turn and deliver the child, we are justifiable in proceeding to gastrotomy. This has been called a horrible expedient, and most true it is : so is amputation, lithotomy, and many of the operations of surgery. But who will be so weak and inconsistent with that art which he professes to be acquainted, as to hesitate about the performance of an operation, which is to preserve the life entrusted to his care ; surely such a man is unworthy the confidence and esteem of his fellow men. True this operation presents an appalling aspect, but let us never forget, that paramount considerations should induce us to perform it : I do not mean to recommend it, until other resources have failed ; but so soon as the practitioner finds himself foiled in all attempts to deliver by the natural passage, he ought then, cooly, calmy and candidly, to state to the patient and her friends, that this is her only resource, and the little prospect of success which awaits her : and having premised the danger of the operation, the certain fatality without it, and obtained her assent, he should not then delay a moment, but proceed boldly, and skilfully to the execution of the operation, and he may have the satisfaction in the end, to know that he has certainly rescued one fellow creature from a premature grave. This, and this alone, would be a strong motive with a man of feeling and ambition, if there were none other ; but the life of a fellow creature is such an awful charge upon us, the responsibility so great, and the throes of poor suffering humanity so urgent, that I hope, and earnestly entreat, that no man who has a regard for his happiness here and hereafter, will hesitate to discharge that duty, which alone can satisfy his own mind that he has conscientiously done all, that the limits of his calling would allow.

A fear of being charged with unskilfulness, may prevent some men from announcing a rupture of the uterus, at the moment it takes place, and of proposing the necessary means o relief, but this is a coward and selfish fear, which places things frequently in an irremediable situation, and which prefers the loss of human life, to the temporary suspicion of the weak and the ignorant, that we have been wanting in knowledge and skill, of which they can form no correct es-

timate. Let me hope that few such are to be found, in times like the present.

We now come to the consideration of the rupture of the vagina. On this subject I have but little to offer, there being but few cases on record, and never having seen but one, which I have already stated to have been complicated with the rupture of the uterus. Dr. Ramsbotham mentions two cases, both of which terminated fatally. See 87th and 88th cases in Midwifery. Whenever this accident takes place, or is suspected, the patient should be compelled to lie on one side or the other, and never on the back, by which means the divided portion will have a greater chance of uniting readily, being kept in direct coaptation; Bleeding, moderate purgation, and the antiphlogistic method will probablly be requisite, but here, the treatment must necessarily be much at the discretion of the practitioner, who if he puts this plan too rigidly in force, may lose his patient with typhoid symptoms, and if he neglect them entirely, with peritoneal inflammation. I believe that most cases of rupture of the vagina, like those of the uterus, will always be found to terminate in death.

NOTE. The author has said he wonld challenge the adherents, if any there be, of the old doctrine, to produce a single well attested case of recovery in case of ruptured uterus, where the child has not been delivered: and he entertains no apprehension that his challenge will be taken up; at the same time he is well assured that cases of this description have been attempted to be palmed on the medical world: yet he does not believe any one of them, but is inclined to the opinion that they were cases of extra uterine conception. It is well known that encysted fœtuses have lain for years in the abdominal cavity without prodncing death, and have eventually been discharged per anum, or by the bursting of abscesses occasioned by their presence. The only way to settle the point is by post mortem examinations; whenever a fœtus shall be found in the abdomen, and the uterns presenting a firm callous cicatrix throughout a considerable extent, we may then conclude and not until then, that recovery has taken place from rupture of the uterus, unaided by the hand of art, but such a discovery I apprehend will never occur, to any other than one disposed to fiction.

ART. IV.

Experiments with PYROLIGNEOUS ACID *in some cases of Bilious Fever, by* M. ANTHONY, M. D. *of Augusta, Georgia, communicated in a letter to* S. H. DICKSON, M. D. *Professor of the Institutes and Practice of Physic in the South Carolina Medical College.*

I have instituted a practice this season of using *Pyroligneous Acid* internally, in some cases of bilious remittent fevers. There is a grade of bilious fever, which appears here almost every year, the symptoms of which, approximate very nearly to those of yellow fever. We perhaps never have genuine black vomit here; but we have green, blue and black bile passed by vomiting and purgation; and the complexion in the cases sometimes approaches very nearly to the brown yellow, or mahogony color of yellow fever.

In these cases there is, much hepatic obstruction and instability of stomach, early in the case, which soon leads to irritability and flatulency of that viscus, attended with loss of digestive power, soon followed by death of the part, which is speedily extended to the rest of the system. When this irritability arises, medicines cease to excite or pursue their desired effects.

In two cases of this kind, I have administered from a tea spoonful to a table spoonful of Pyroligneous Acid with the intention of preserving the texture and vitality of the stomach. It has in both cases, answered my most sanguine expectations; and as an evidence of its applicability to the stomach in this state, although vomiting and disposition to vomit have been almost perpetual in these cases, this acid has not in any case been rejected or thrown back from the stomach. I have thought proper to inform you of these facts, and to request you, and through you, other gentlemen of the Medical Society, to give it a fair trial in that state of the stomach in the yellow fever,* in which these indications may

* I tried the Pyroligneous Acid in two cases of yellow fever in 1824, at the Lazaretto, in that stage when irritability of stomach had commenced; in both cases there was bleeding from the gums and nose. The acid at first appeared to be benificial; it checked the vomiting, but the patients died, and the black vomit exuded from the mouth and nostrils after death. Disheartened by this attempt, and experiments which I had made in this stage of the disease with other remedies to produce an antiseptic power, and believing them to be all delusive or at best but slight adjurants, I did not extend my experiments any farther, although probably in some other cases it might have proved advatageous.

T. Y. SIMONS, *one of the Editors.*

exist, believing that with due care and liberal use, it may be found an important agent in the service of humanity, and particularly in that disease. I think no danger may be apprehended from a liberal use of it.

ART. V.

*An Account of the Eruption of Mount Etna, on the 27th May, 1819.

[Extracted from the Journal of Signor M. Gemmellaro.]

During the first four months of the year 1819, the mountain was remarkably quiet, and no other phenomena was remarked in the crater than the occasional evolution of white vapors. It remained thus tranquil until the morning of the 27th of May, when it suddenly sent forth copious volumes of smoke, and the whole mountain trembled. Three large mouths or caverns opened near those which were formed in the eruption of 1811, at the south-east foot of the high *bicorne*, in the lava called *del filosofo*, formed in 1792, about half a mile from my cottage. Flames, and red hot cinders and sand, amidst dense smoke, soon began to burst into the air from these mouths, with an inconceivable noise, and the dust, transported by the wind, covered and dried up the grass, and blackened the roofs of the houses from Nicolosi to Aci Reale, &c. A few minutes afterwards, another mouth opened below, under the ridge of the large valley del Bove (which the mountaineers call Trifoglietto,) whence issued forth flames and smoke; and finally, a fifth, lower still, in the Rocca di Giannicola, above that of Corvo, from whence issued a torrent of lava, which spread itself with great velocity over that valley. Amidst so many crashes, and such great confusion, and the atmosphere so dense and black around the mountain, the inhabitants of the villages were almost all in motion, and many affirm, that about mid-day, various shocks of earthquakes were felt in Nicolosi, in Viagrande and also in Catania.

* Quarterly Journal of Science.

May 28th.—The explosions, which shook the mountain, continued the whole of this day, and the course of the lava was so rapid, that in less than twenty-four hours it arrived at Zappinello, which is two miles distant from its source.—In the evening, the lightning, amidst the column of flame and smoke, recalled to mind "L' enorme e rigoglioso pino," so celebrated in Vesuvius. It is clearly seen, that the liquid lava flows by a superficial channel from the centre of the great crater, although neither smoke or flame issue from it.

29th.—The explosions of the higher mouths continued, and the course of the lava proceeded with nearly the same rapidity, and extended almost two miles farther, arriving at Carazo in the fields. The inhabitants of Zafarano began to be in fear for their farms and village. The higher part of Etna, as the *Piano del Lago*, the *Torre del Filosofo*, my house, and the great ditch della Cisterna, particularly, are cracked with long gaps, which all traverse the hill upon which stands the Torre del Filosofo. The three original mouths are become two, that is, one of them remains as it was, and the other two are united into one. The cinders that have fallen every where around the mouths have formed into a very curious wreath, composed of various colors of sulphur and of muriate of ammonia.

30th.—The body of the lava is much retarded to-day, therefore it spreads itself in various directions.

31st.—The lava is losing its fluidity and motion; and it appears that it will stop near La Mandra di Pantano. The explosions still continue strong and noisy, but the chief crater sends forth very little smoke.

June 1st.—The lava stops at the Mandra di Pantano, and puts an end to the fear entertained at Zafarano, but it still continues to run, from time to time, in the Contrada di Gainnicola.

2nd.—The chief crater is still without smoke.

From the 3d to the 8th.—The lava resumes its course, still amassing itself, the preceding body forming a bed for the succeeding one. It increases in quantity, and the explosions and denotations increase equally, in an extraordinary manner.

9th.—The denotations are stronger than at first.

10th.—The denotations to-day are heard seldomer, but are louder, and accompanied by tremblings.

11th.—The denotations are as strong as at first, but i-

stantaneous, and exactly similar to the firing of large cannons.

12*th* and 13*th*.—Majestic globes of smoke, more frequent, and filled with sand, issue from the chief of the high mouths, and reach in fine dust, to Catania. At half past 4 P. M. the superior mouth, or that near the Torre del Filosofo, vomits portions of lava, and the four inferior apertures also send forth lava, which forms two torrents. Both run down the valley del Bue, in length about 240 feet, carrying desolation before them. A mass of debris now covers all the apertures from which the great smoke arose, from the running subterraneous fluid. The aspect of these ruins is awful; it displays caverns of immense depth, masses suspended, and rocks of ancient lava broken and destroyed.

14*th*.—The streams of lava from the superior mouth are more copious, a great furrow is open amongst the rubbish of the *Ciglione*, and from this proceeds smoke, explosions of stones, some of ancient lava not decomposed, and others of new lava; meanwhile, the lava runs from the higher, the middle, and the lower mouths, increasing in quantity by the masses rolling over each other, and reaching as far as the Contrada di Zappinelli.

15*th*.—The streams from each mouth continue to be copious, and cover all the neighborhood.

16*th*.—The denotations are lessened, and without shocks, but the globes of fire and smoke are in great abundance.

17*th*.—The stream of the lava is augmented; the globes of sand are become larger.

18*th*.—Loud roarings are heard continually.

19*th*.—Lava does not issue from the fissures of the Ciglione before mentioned, but only from the ancient apertures, and with little roaring. The high crater smokes a little today, the smoke being whitish.

20*th*.—The crater becomes quiet, that is, there is no smoke, and the lava runs as before, but with less noise.

21*st*.—The chief crater smokes at intervals; this is, perhaps, caused by the hail-storm, and by the west wind, which has blown a few hours. The original mouth remains bounded by a small circular mountain, which is formed by the erupted cinders and sand; the bottom of this gulf encloses three apertures or mouths, from the first of which smoke and stones are hurled into the air, with great noise; from the second, smoke and cinders; and from the third, smoke and vapor.

23d—From the foot of the above mentioned small mountain, a stream of lava runs as before; the last mouth is divided by a small intersection into two. The lava, in the mean time, issues as before, and great stones are also, at times, projected, with a violent crackling noise. The torrent appears to take the direction of the valley di Calanna, and blocking up the pass by which it would reach the district of Giannicola, it overflows that valley.

24th.—The detonation at the mouth continue, with more force, and without interruption. The lava which overflows the valley di Calanna presents a most singular and suprising sight; it hurls itself down an almost perpendicular fall, while part of it being hardened in the descent, and then falling to the bottom, makes an inconceivable crash and noise; and precipitating itself so rapidly, it carries with it the soft part of the hill, and forms an immense column of dust, more remarkable than the smoke vomited from the different mouths at the time of the eruption. This circum-tance caused many who observed it from a distance to believe that a new aperture was formed in that place. The original high mouth, or truncated cone, does not send forth any more cinders or smoke, neither are the roarings heard so strongly as at first. The lava occupies little space in the valley di Calanda; it is exactly between the Acqua Grande, and Acqua Rossa. The smoke, mixed with dust, ascends, as yesterday.

26th.—The lava does not advance more than sixteen feet an hour; at 5 P. M. smoke is discharged from the higher mouth, mixed with the finest sand, which falls at a great distance.

27th.—The lava runs to-day much quicker in the above mentioned valley, having increased in quantity, by the junction of several streams. The smoke, mixed with sand, continues, and is driven, by the force of the wind, beyond Cape Pachino. It is singular, that no smoke appears from the great crater.

28th.—The cone is swallowed up on the north-west side, opposite the high Bicorne, so that the explosions of scoria come from the enlarged mouth, and the smoke and sand from the broken cone itself Towards five in the morning, the west wind forces the smoke and sand on the other side, so that we are thus liberated from these dismal and severe showers. All the vicinity of the original higher mouth, which had been, until to-day, covered with a quantity of scoria

and fragments of stones, upon which it was not possible to walk without danger, is now covered by the sand that has fallen there, in such a manner, that it remains level, like the surface of the Piano del Lago. The lava does not make so much progress in the valley di Calanna.

30th, and *July 1st.*—The lava in the above-mentioned valley has ceased to advance; in the night, at ten minutes before twelve, an earthquake was sensibly felt, but more in Catania than upon Etna. The motion seemed to oscillate from south to north.

2nd.—The lava within the valley di Catania begins to cool, and the highest mouth roars but seldom.

3d and *4th.*—The small hillock of the truncated cone, from being broken, as it was on the 28th ultimo, is already formed anew, and is regularly circular; it emits sand, scoria, and smoke, but all at the same time, and not at intervals, as formerly. The lava runs within the valley del Trifoglietto, in the same quantity as before; in the Contrada di Giannicola it widens, and expands towards the lands of the Solifizio: within Calanna, it has ceased to run.

5th.—The cone sends out smoke, fire, and sand, without noise.

6th and *7th.*—The lava begins again to flow a little in the valley di Calanna, and it is feared that it may bury the source of the Acqua Rossa. On the other side, it threatens the Contrada del Cerrazzo.

8th.—From the cone, the smoke issues from two neighboring throats or apertures, with more noise than before.

9th and *10th.*—The cone smokes and roars terribly.

11th.—The cone emits smoke with its usual force, and its northern throat is considerably enlarged, and is that from which issue immense columns of smoke, with scoriæ, and rumbling noises.

12th and *13th.*—The highest crater begins to be quiet; the cone diminishes its northern throat, and emits little smoke; the lava appears to take the direction of Il Cerrazzo, and passes that of 1811.

14th.—The roarings are more terrific and deafening.

15th, *16th*, and *17th.*—The interior of the cone remains divided on the southern side, and vomits smoke, with the usual frightful noise; and in the northern half, it would be almost choaked up, if it were not for small holes which exhale smoke, and through which the liquid and red-hot matter can

be observed at the bottom. The portion of the *Ciglione* of the valley del Bue, which fell in on the 13th of June, is now sunk somewhat more. The lava continues to run in quantity, and with great velocity, and ramifies within the valley del Bue.

18*th* to the 27*th*.—The lava runs from the cone, but without noise.

28*th* to the 31*st Idem*, *August* 1*st*.—The lava is now suddenly stopped.

NOTE.—It will not, perhaps, be tedious to the reader, if I repeat what I have before communicated to many of the philosophers of Europe, upon the subject of the Electricity upon Etna:—On the 2nd of June, 1814, before mid-day, two travellers were returning from the mountain, guided by Vicenzo Carbonaro, one of my guides, from Nicolosi. They had arrived in the Piano del Lago, where, expecting a hail-storm, they quickened their pace, walking upon the frozen snow. Carbonaro was the most advanced of the party, he felt his hair stand an end, his forehead and the skin of his face felt benumbed, and he heard a hissing noise. He took off his cap, and his hair became more bristled, and the whistling noise more powerful. The traveller nearest to Carbonaro also heard a humming sound, and asked the guide what it was; he could not give him any reason for it, and he stopped, supposing he was dizzy. In the mean time, they approached each other, and were pleased with the magic sound. The traveller turned to call his companion, who was at a like distance off, and made a sign to him with his hand; the hand, when raised, produced a much stronger sound; so much so, that moving the fingers singularly modulated it. The traveller approached, and heard the sound produced by the head and body of his companion. He wished to imitate his companion, but not having entered into the current of electric air, his repeated attempts produced no sound. Finally, the three persons having joined, they experienced great pleasure, as with moving their fingers, they produced the above extraordinary effect. In the mean time, the hail-storm fell on them, and being rather curious than erudite, they resolved to pursue their journey downwards, without caring to make further investigations. Scarcely had they gone a few paces, going out of the electric air, than the sounds ceased, and Carbonaro was relieved from his apprehensions.

ART. VI.

Communication to the ST. JOHN'S COLLETON AGRICULTURAL SOCIETY, *by* EDWARD BROWN, ESQ.

GENTLEMEN—Philosophers have at various periods, proposed different and opposite theories on the philosophy of vegetation; some have assumed that water is the only substance, capable by itself, of promoting and sustaining vegetable life; others have contended that from air plants receive their principal support and nourishment, and that the earth

or soil holds but a secondary place in nourishing and bringing to perfection, the vegetable productions of the earth.—These researches into the secret operations of nature are both curious and pleasing; but the practical agriculturist must learn his lessons of instruction, in his art, from the surer book of facts, furnished by actual experiments. He *believes* that water and air, &c., are necessary to promote vegetation, but he *knows* that on good soil he has principally to depend for a crop. His reasoning must be *a posteriori*. "The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh, and whether it goeth."

As improvement in the agriculture of a country, can be effected, in the main, but by experiments, its advancement in the science, can only be by slow progressions. Three important stages in agriculture, are necessary for a country to pass through before it can lay claim to a scientific practice of the art. The first stage embraces the cultivation of land requiring the least possible labor to produce a crop. The second, the preparation of land, by clearing away timber, or other process, to obtain fresh land as the older lands have become worn out, or as additional access to labor offers itself. The third, when the maximum of labor is equal to the land required to be cultivated; this is the stage, to which the greater part of the Sea Islands, and other valuable tracts in this country, are fast approaching, if not already arrived to. In this stage, the importance of agricultural improvement merits the highest consideration; herein, lands are required to be kept perpetually fertile by art, to plant them successfully; for the value of their produce is mainly dependent on the value of similar produce of other countries. In applying the experience of other countries, in the art, to the agriculture of this country, it is especially incumbent on the planter to keep in view the price of labor in those countries, compared with the price of labor here; and also, the active effect which a warmer climate has on vegetation, compared with a colder one. If the same portion of stimulant was applied to the soil, to produce a crop, in the latitude of 30 degrees, as is required to produce one in the latitude of 50 degrees; and each soil previously, in the same state of productiveness, it is not improbable, but a serious injury might arise to the crop, in the warmer latitude, from the combined effect of excess of stimulant and active effect of warm climate on vegetation. There appears to be a geo-

graphical grade in the quality of soil, which accommodates itself to climate; as soil approaches the tropical latitudes, it generally becomes lighter and less capable of supporting protracted vegetation, whilst atmospheric influence on it, becomes proportionably greater; hence the philosophy of apportioning to soil, stimulating or supporting manures, according to the period different crops may require to come to perfection.

Different periods have produced different systems for the practice of husbandry TULL, who has been styled the father of English husbandry, promulgated the doctrine, that soil to make it perpetually productive, required only to be deep trenched, whenever it became inert; thereby bringing the sub-soil on the top, which had been resting, whilst the top-soil had been producing successive crops. To his system of successive cropping the same land, succeeded the fallow system, from which was expected double crops to make up for loss of time in fallowing. Then followed GREGG's system of placing the seed in the ground by drilling in yearly alternate spaces: these and other systems proved abortive, in producing the great end required. Experience taught the farmer, that the only general system to be depended on, to keep land in a state of fertility, was a judicious system of manuring combined with rotation of crops. In the accounts which we have of the state of agriculture in other countries, it is observable, that whenever they are in the habit of raising comparatively large and frequent crops, on the same lands, it is to manure, rather than to climate or naturally rich soil, they are indebted for them. Many minutiæ may be correctly employed by the judicious planter or farmer for the improvement of a crop, but his principal dependence must be on manure, if the soil is much reduced by previous cropping or naturally poor, to make a good one.

All manures may be good, but all manures are not equally good; different soils are made up of opposite quality of materials; in some, sand is predominant; in others, clay prevails; in some, calcareous matter forms the principal material; in others, vegetable matter holds the ascendancy. To each of these soils, there are particular crops, they are eminently calculated to the production of; but it is the peculiar art of the agriculturist, to make each, through his means, productive of the particular crop he wishes to raise; this end can be attained only, but by the application

of manures, which abound in the specific quality of which the soil was before manifestly deficient in.

To introduce here, foreign systems of husbandry, altogether, would only be to abandon them again; but there are parts in them, which might be advantageously imitated, particularly their preparation of manures. In this art, the Flemish husbandman has arrived to a high degree of excellence; to manure, and to deep trenching whenever the former has become inert on the soil, he is principally indebted for the astonishingly large crops he usually makes. Although the soil of Italy is represented as being very fertile, and its climate highly favorable to vegetation, yet to manure, irrigation and a judicious rotation of crops, she is indebted for a succession of abundant crops, which are calculated to excite surprise in the minds of thosewho think they are cropping their lands hard, if they take more than one crop off them, in three years. China stands pre-eminent in the art of raising abundant crops, by the aid of tillage and manure. Great Britain is far behind any of these countries, in the quantity of her produce on the same number of acres; yet, from her practice many good lessons may be learned. She has availed herself of the lights which chemical science has shed on making composts. She has determined from actual experience, the particular property required in manures, to benefit certain crops on certain soils; in fine, she has laid down a code of first principles in husbandry, which cannot be deviated from without injury.

Manure made in the cow-pen, being formed by the decay of vegetable matters, consisting principally of marsh, rushes, grass, pine-trash, corn-stalks, &c., mixed with the dung of animals and various other materials, must be considered a compost-manure. As this compost forms the greater part of the active manure, a plantation is capable of affording, it is of great consequence to have it made in the best manner and in the greatest quantity. A practical author remarks: "as the principal resource (for manure) on most farms, is the farm-yard, it should be constructed in such a manner, as that every thing may with ease and facility be converted to the purpose. In general, one dung-stead may be sufficient; but when the size of the farm is large, two or more may be necessary, as the putrefaction of such heaps proceeds with greater regularity and expedition, from the access of air and moisture being more free when they are

not made too large; and, besides, they can be more easily *turned over* or removed. The parts of the yard in which they are situated, should, while they are convenient for depositing the dung, and other matters from the (pens,) sheds, stables, and other offices upon, be neither too much elevated, so as to cause the dung to become dry, nor so greatly depressed, as to favor the stagnation of water upon it, and thereby deprive it of the properties most essential to the promotion of vegetation. Before each of the dung-steads, a reservoir or basin ought to be made, into which, not only the drainings from all the different sheds or places where animals are kept or fed may empty themselves, but the soap-suds from the wash-houses and the washings of the various utensils employed in the family.* Without these advantages in the construction of the farm-yard, much loss of manure must daily occur from the liquid matters of such places continually running away and being otherways wasted, as well as from their not being made use of to forward the conversion of other substances into the condition of manure†:—But

* If these reservoirs or basons should be thought of sufficient importance to the South Carolina Planter to be adopted, could they not be cheaply formed by *puddling?*

† It is of the first importance, to the value of the manure, to have the pen or fold, in which it is intended it should be made, so situated, as to prevent, as much as possible, the liquid, or what may be not unaptly termed, the essence of the manure from being washed away; for on this part, the value of the manure principally depends. An improvement might take place, in most stationary pens, at a very small expense, by digging a ditch around, or at the side of the pen where the greater fall terminates, and rising a mound or bank, around the pen, to prevent the liquid matter from running off; the pen to be kept dry by under or covered drains, thirty inches below the surface, whose mouths or *eyes*, as they are technically called, lead into the ditch at the lower end of the pen. The advantage to be derived from this plan, would arise from the water running from the pen in a filtrated, or nearly pure state, leaving the *essence* of the manure behind; whilst in the common plan of making pens, a large portion of the more valuable part of the manure is carried away by every heavy shower of rain; or the pens rendered wet uncomfortable places to the stock confined in them. The following extract will illustrate the value which is attached to this part of manure, in a country, where manuring of land, to make it fertile, is reduced to a science:—

"It is now ascertained by the experience of the Swiss, that manure applied in a liquid state is the most efficacious of any, and produces a *third* more effect than what is spread on the surface. Hence after dung is fermented, they dilute it in water, and the liquid alone is carried to the field, and scattered over it. The earth immediately imbibes the liquid, which soon reaches the roots of the plants, and causes a rapid vegetation; whereas it is a long time before dung, in a solid state, fertilizes the soil. The straw that remains after the dung is thus washed, is applied as manure for potatoes — The experience of Mr. Hartley, who keeps a great Dairy near Glasgow, corroborates this doctrine. He says, 'that the advantage of irrigating grass lands with cows' urine almost exceeds belief. Last season, four small fields were cut six times, averaging fifteen inches in length at each cutting, and the sward very thick The soap-suds of a neighboring poor-house are applied to the same purpose with considerable advantage.' (*Hints on the Agricultural state of the Netherlands, by Sir John Sinclair, Bart.*) *Farmers' Magazine, Feb* 1825.

The value of this part of manure is further illustrated by the experiments of Arthur Young, as stated in the "Prize Essay" addressed to the Bath Society, on the compari-

that, where these and other suitable accommodations have been provided, the farmer will have little more to do, than be careful in saving or providing such matters as are suitable for the purpose, and causing them to be properly placed and removed, in order to have them speedily reduced into the state of manure, and the quantity of his dung-heaps thereby greatly increased." With the same design, coarse grasses and aquatic vegetables should be cut, when they are in the most juicy and succulent states, and preserved in as large quantities as possible, allowing nothing to go to waste.—"The whole after being sufficiently dried, should be carried to the farm yard, and stacked up in convenient situations, either in or near them for the purpose of being made use of as litter, and by that means being converted into manure. And in addition to these means, every leisure opportunity should be taken, before the commencement of the fodder ng season, to bring into the barn-yard, such quantities of peat, rich surface mould, marsh, dry mud, and other substances of the same kind, as can be conveniently obtained, for the purpose of being applied as *bottoms* for the absorption of the liquid matters. In winter and spring, when dung is taken from the stable or fold yards to the fields (to be there first placed in heaps to undergo fermentation) it is conceived better to throw it up with forks, than allow the carts to be taken on the dung-heap; a practice, which prevents a speedy or complete fermentation. At these times, the quantity of manure

tive value of different manures. He stated he had straw cut into chaff, and steeped in fresh urine, and applied to the soil, as manure, for barley; which gave the following results:

The earth, without any manure produced of grain, as	9
The straw, applied dry, as manures, as	39
The straw. steeped in urine three hours, as	50
Do. do. do. do. fifteen hours, as	63
Do. do. do. do. three days, as	126

In weight of straw and grain, the proportions were:

The earth, without manure, produced as	48
The straw, applied dry, as	100
Do. do. do. steeped three hours, as	120
Do. do. do. do. fifteen hours, as	130
Do. do. do. do. three days, as	300

The soil in which these trials were made on being analyzed, was found to consist o (300) grains:

Sand,	136
Clay,	164

Carbonate of lime, none.

It is worthy of remark, in the above experiments, that the greater difference in the quantity of grain produced, is between the soil without manure and the dry straw; and between the straw steeped fifteen hours and three days; the latter produced exactly double what the former produced; and that the greatest proportion of grain to straw, is from the soil without manure; the proportions of grain to straw, are about 3-16ths, 2-12ths, 1-2, and 2-5ths.

may be increased by mixing with the dung, large quantities of rich earth, from old dykes, sediments of ponds formed by running water, and such other places as are most likely to afford it, well mixed with fresh or dissolved vegetable matter. But it is well observed that the practice of mixing earth with dung, requires to be managed with a delicate hand, especially in forming a dung-hill with materials that have not been previously subjected to fermentation, for, as in carting upon it, by pressing and consolidating the mass, it greatly retards, and in some instances, entirely prevents fermentation; indeed, by mixing any considerable quantity of soil with dung in an unfermented state, by pressing the straw and other matter into a small space, it so effectually excludes the air, that the dung, at the distance of several months, is found in a state very little different from what it was when put into the heap, and after all, when it is, in common language, said to be rotten, it is upon examination, found to be only decayed, and the produce, instead of abounding in rich mucilaginous substances, which a well fermented dung does, is found to consist almost entirely of vegetable earth. There is, however, a mode of applying earth to dung-hills, that is not only safe, but highly beneficial; it consists in covering the whole surface of the dung-hill lightly, either with common earth or broken peat, every time the stables or fold-yards are emptied; a covering of that kind not being heavy enough to press materially upon the mass, does not retard the fermentation, and has the great additional advantage of preventing the loss daily sustained about most farms by evaporation, and the dissipation of the greatest part of the valuable gasses generated during the process of fermentation, all of which are entangled and retained by the earth (spread over the dung-hill); which, by that means not only acquires high fertilizing powers, but renders the dung more valauble. When a proper system is followed of carrying out the manure from the stable and yards to the dung-hill—as once a month, if it is spread equally over the whole, and a covering of the kind just mentioned laid above it, a considerable addition may be made to the quantity of manure upon every farm yearly, not only without risk, but with very great advantage.

Dung-steads may require some explanation: it is commonly the practice of the English farmer, to take manure from the farm-yard, and other places, and put it in heaps, suf-

ficiently large to produce quick fermentation, which greatly hastens decomposition:—the place appointed to receive these heaps is in some counties, called a dung-stead. If there is spare time and spare teams. it is not unusual to have the manure carried direct from the fold-yard, and made into a heap in the field, where it is intended it should be applied.

There are parts in the English farmer's system of making farm-yard compost, which merit consideration and imitation from the Southern planter; if his crops do not afford straw, to be converted into manure, or equal means of grazing stock in the yard, to benefit it in quality and quantity; yet, his resources for the puopose are very great, in the number of lean cattle and other stock, his waste and resting lands enable him to keep; and in the quantity of vegetable matter most plantations afford, capable of being converted into profitable manure. The former attaches more importance to the quality of the manure than the quantity, although desirous of increasing the quantity as much as possible, but not to the detriment of its quality. He does not consider his compost in a fit state to be applied to the land, by simply supplying the fold-yard with a sufficient portion of litter to be trod down by the stock; knowing that it has undergone but a very slight change in that situation. At different intervals, the yard is cleared, and the various materials of which it is composed, are placed in heaps to undergo another fermentation, to effect further decomposition; after remaining in this state a sufficient period, say a month, it is turned over, 'in order that the animalised matters may thereby not only be still more incorporated with the earthy substances, but, likewise, that more pure air may be retained amongst the the hard lumps, from their being rendered much smaller by such means, and the putrefactive process be thereby more perfectly produced.' If there is any occasion to suppose the dung-hill is not sufficiently rotted, or the different matters of which it is composed, not intimately blended together, it is again turned over, before it is spread on the land. As little delay as possible, ought to take place before applying it to the soil, after it is considered to be in a fit state, 'as from the combination of oxygen or pure air with the carbonaceous material of the dung, and of azote with hydrogen; under these circumstances, fluid matters are formed that constitute its more beneficial properties, but which are afterwards continually wasting as long as it remains unapplied to the soil.'

In bringing forward, such a lengthy authority, in favor of a more effective mode of managing cow-pen or fold-yard compost, it has barely left room to notice other composts, which might, perhaps, be adopted with advantage here.—The ill success which has attended *salt*,* as a manure, induces a short extract to be inserted, on its valuable properties, for the purpose, when combined with other matters:—"The muriat of soda, or sea salt, is a substance, the utility of which, for the purposes of manure, seems not yet well ascertained, as by some it is considered as possessing considerable powers, of promoting vegetation; while others have experienced little or no benefit from its application. But though it may prevent putrefaction, when employed in large proportions, by its antiseptic property, different trials have proved; when

* Among the various substances for manure, which the modern practice of agriculture has brought forward, the greatest diversity of opinion exists on the value of *salt* for that purpose. The following experiments (extracted from the *Farmer's Magazine*; May, 1825) merit attention.

"Experiments on spaces of thirty-six square feet, with Talavera wheat drilled in the soil, November 5th, and reaped August 2nd.

	Bushels per acre.
Salt mixed with the soil four inches deep before sowing, produced	91
5 1-2 bushels of salt mixed and sown with the seed, produced	73
5 1-2 bushels of salt, simply applied to the surface, produced	77

"Observation.—The largest produce per acre, on space of thirty-six square feet, must not be considered erroneous results."

Experiments with Wheat after Barley in the field practice.

	Bushels per acre.
Soil simple, produced	16 1-2
Soil dressed with eleven bushels of salt, produced	22 1-4

Experiments with Wheat after Peas, 1819.

Soil simple, produced	16
With six and a quarter bushels of salt with the seed,	17 3-4
With six and a half bushels of salt dug in with the seed,	23 1-4
With six and a half bushels of salt, and six and a half soot, dug in,	20

Experiments with Barley after Turnips, in beds of thirty six square feet.

Barley, without manure, produced	12
Five and a half bushels of salt, applied before sowing, produced	28 1-4
Eleven bushels of salt applied before sowing, produced	28 3 4

Experiments with salt, and with salt and soot, applied to carrots, in beds of thirty six square feet.

	Tons	Cwt.	lbs.
I. Carrots sown without salt or any kind of manure, produced	23	9	107
II. 13 1-2 bushels of salt, mixed and sown with the seed, produced	30	12	79
III. 6 1-2 bushels of salt dug in previous to sowing, produced	44	14	17
IV. 13 1-2 bushels of salt dug in previous to sowing, produced	31	13	47
V. 6 1-2 bushels of salt, and 6 1-2 of soot, dug in previous to sowing,	40	4	90

"Observation.—The effect of salt mixed with soot is remarkable: the roots of the carrots in No. 2, were the smallest, in No. 4 the largest, and in No. 5, the healthiest The destruction of slugs and earth worms is best affected by salt; but for this purpose, it must be used in not less quantities than ten or fifteen bushels per acre, applied to the surface."

Two circumstances are worthy of notice in these experiments; first, the largest produce was in each case where the salt was dug in, particularly in the experiments for carrots: secondly, nearly as large quantity of Barley was produced by the smaliest quantity of salt used.

Corollary. It may be better, when salt is used in its simple state, as manure for cotton, to sow it over the surface of the land, after it is listed, to be mixed with the earth of which the bed is formed.

used in small quantities, it has a tendency to promote this process. On this account, it may therefore, it is supposed, be serviceable when incorporated with farm-yard dung, and other animal or vegetable matters, in small proportions."*

From the partial trials which have been afforded to *lime*, to benefit the cotton and other crops of this country, no just criterion of its value, for the purpose, can be formed. From its caustic property, when unslacked, an idea has arisen, that it is heating, and consequently, injurious to vegetation: so it might be, if it had the power of retaining its caustic quality, when spread on the land; but if it was not *effete*, before spreading, the dampness of the earth would be sure to render it so; in which state, it is the least heating of all other manures, from the power it has of attracting moisture to itself. If evidence is wanted of this fact, witness the moisture, observable on plastered walls in damp weather. Dr. Anderson's practice, as stated in his 'Essays,' leads to the conclusion, that it may be used with advantage to the amount of seven hundred bushels, or more, to the acre; particularly on soils which are deficient in calcareous matter; on these soils, the only danger, which he apprehends, from its use, in very large quantities, is, an over luxuriance in the crop. Lime holds an important place in the formation of composts, especially where the decay of fresh vegetable matters of the coarse and hard kind is required. When this is the case, it should be applied to the heap, in its caustic state, in small quantities; 'as in this condition, thus sparingly employed, it reduces more expeditiously the ligneous and hard parts of such matters to an earthy state; and during its action in this way, on these substances, such elastic matters are set at liberty, as by their subsequent combination afford AMMONIA or volatile alkali.

* It must be kept in mind, that when a substance is applied as manure to a soil or to form composts, these ingredients when incorporated, chemically act upon each other, producing decomposition and new combinations altogether different from the original ingredients are formed. In the application of manures therefore, we should endeavor to ascertain the chemical action which would be likely to result, and the principles which would be evolved—and whether these are most condusive to vegetable production. In this way the application of manures to soils might be reduced to a positive science, and all the discrepancies in experiments be explained. We do not however mean that this should be done by every planter, but a series of experiments, conducted on the plan would be highly valuable. On this subject, Sir Humphrey Davy's work on Agricultural Chemistry we would recommend, and we would wish it generally studied by agriculturists, notwithstanding the doubts of its practical usefulness by many planters. The work is unquestionably deficient in many points, arising from the paucity of correct chemical analyses regarding agriculture, yet it forms an admirable guide and means of instruction for those who wish to advance the philosophy and of consequence the practice of agriculture. EDITORS.

ART. VII.

On a peculiar Vegetable product possessing the principal properties of TALLOW, *by* BENJAMIN BABINGTON, M. B.

[Communicated by the Author in a letter to the Editor of the London Quarterly Journal of Science.]

DEAR SIR—During a visit to the coast of Malabar, in the year 1818, my attention was attracted by the very durable natural varnish which exudes from the Vateria Indica, a tree of common occurrence in those parts. Both the resin and the tree which produces it, have been noticed by the botanists of India.*

Dr. Ainslies' assertion, that this resinis soluble in oil of turpentine, is not quite correct, its habitudes being nearly similar to those of Copaul. It is not however to this material that I am now desirous of drawing your attention.

On a subsequent occasion, when employed at Mangalore, in the province of Canara, I learned from a native of that town, that the same tree furnishes another product, which has not been noticed by any natural historian or European resident in the country, although its qualities are such, as may render it a valuable article of commerce, and therefore seem to entitle it to the notice of our countrymen. The product to which I refer is a concrete inflammable, partaking of the nature of wax and oil, which, from its appearance, may not inaptly be termed a tallow It is in use only in the town of Mangalore, and there is employed medicinally as an external application for bruises and rheumatic pains, and likewise, when melted with the resin of the same tree already alluded to, is used as a substitute for tar in paying the bottoms of boats. The method of preparing this material, is simply to boil the fruit in water, when the tallow is soon found to rise to the surface in a melting state, and on cooling, forms a solid cake. Thus obtained, the Piney Tallow (Piney is the native name of the tree that produces it) is generally white, sometimes yellow, greasy to the touch, with some degree of waxiness, almost tasteless, and has a rather agreeable odour,

* See Dr. Boxburgh, MS. in Sir Joseph Banks' library; Ainslie's Mat. Med. Hind.

somewhat resembling common cerate. It melts at a temperature of ninety-seven and a half degrees, and consequently remains solid in the climate of India, in which respect it differs from palm or cocoa-oil; wrapped up in folds of blotting paper, and submitted to strong pressure, scarcely sufficient oil, or *elain* as it is termed by M. Brocennot, is expressed to imbue the inmost fold. Its tenacity and solidity are such, that when cast into a rounded form of nine pounds' weight, (in which state the specimen I possess was sent from India,) the force of two strong men was not sufficient to cut it asunder with a fine iron wire, and even with a saw there was considerable difficulty in effecting a division Thus exposed to view, or still more obviously when a fresh fracture is made, it exhibits a crystalline structure, in small aggregated spheres, composed of radii emanating from a centre, not unlike the form of Wavellite. I learn that animal tallow, when melted into large casks and thus slowly cooled, assumes a somewhat similar appearance.

The concrete state of this inflammable, has probably been the cause why it has not become more generally known, even to the natives of those parts where the tree is indigeous, for this circumstance would oppose its being applied to the purpose of giving light, since the inhabitants of India, as is well known, do not use candles, but lamps exclusively; for the supply of which they are furnished by nature with several fluid vegetable oils in abundance.

I proceed to detail some experiments which I have made on this substance, with a view to determine its utility, as well as its composition and habitudes.

The specific gravity of Piney Tallow at the melting point, namely at 97 1-2 deg. Fahrenheit, is .8965, and at 60 deg. i s.9260.

Chlorine, when passed through it in the melting state, somewhat darkens its color, changing it to a pale and dirty green. It also imparts to it a very remarkable odour, much resembling that of the rind of cucumber.

Alcohol, specific gravity 820, temperature, 55 deg. separated from 200 grains finely powdered, only 4 grains of a fat oil, which remained fluid at a temperature of 40 deg., thus confirming the resul deducible from the exposure to pressure already mentioned, namely, that very little elain is contained in the substance. This alcohol, in repeated portions of which the powder was digested, until no more oil was taken up, al-

so dissolved the coloring matter and the aroma; and on evaporation, these became united with the oil, leaving it of a deeper amber hue and fragrant odour.

Alcohol, when boiled upon the melted Piney Tallow, besides this oil took up a small quantity of the less fusible part, which was deposited on cooling in minute tufts of a crystalline structure. The tallow thus left after the separation of the elain, had a greater tendancy to crystallize, and to contract in cooling. It was nearly colorless and free from smell, and its melting point was raised to 99 deg.

The fixed alkalies digested on Piney Tallow form with it a saponaceous compound, but a practical soap manufacturer pronounces that he does not succeed in effecting a union, so as to form a marketable soap. It is however difficult, when operating on a very small quantity, to form an accurate judgment on this point, although, that it differs somewhat from animal tallow, probably in partaking of the nature of wax, seems pretty certain

When manufactured into candles,it comes with facility from the mould, thus differing from wax, which does not readily admit of being cast; it give as bright a light as tallow, and has the advantage of that material in being free from unpleasant smell, and in not emitting a disagreeable odour when extinguished. It unites in all proportions with wax, spermaceti, and tallow, and forms compounds with the two former, intermediate in their melting points, according to the proportion of their ingredients, and better adapted to the purpose of making candless than the pure and more fusible substance itself.

With a view to ascertain the comparitive combustibility of the Piney Tallow, candles of the materials under-mentioned were cast; one mould was used for all, and the wicks were composed of an equal number of threads. Having accurately weighed, they were burned for one hour in an appartment in which the air was unagitated, and at a temperature of 55 deg.

	Wt in grs. when lighted.	At the end of an hour.	Loss.
Wax - -	840	719	121
Half wax, half Piney Tallow	770	631	139
Spermaceti -	760	604	156
Half sperm. half Pin. Tallow	777	625	152
Animal tallow -	811	703	108
Halt tallow, half Pin. Tallow	792	681	111

Cape wax -	763	640	123
Piney Tallow -	812	702	110

It should be mentioned that the wax candle in this experiment was an exception to the perfect similarity of circumstances required, its wick being much smaller: notwithstanding which, a greater quantity of the wax was consumed then in the case of the tallow, a result at variance with general opinion.

In the above experiment the wicks, with the exception just mentioned, were of the number of threads usually employed in tallow candles of the size used. In order, however, to judge of the Piney Tallow more accurately, as compared with the wax and spermaceti, I had candles made in the same mould as before, with wicks composed of twelve threads, the number used in wax candles of the size employed. It was also contrived to cast a wax candle for the sake of more perfect comparison.

The following are the results of an hour's combustion:

	Wt in grs. when lighted.	At the end of one hour.	Loss.
Wax - -	730	594	136
Half Piney Tallow, half wax	750	622	128
Spermaceti	736	590	146
Half wax, half spermaceti	762	616	146
Piney Tallow -	774	684	90

From these two sets of comparative experiments, which, allowing for the smaller size of the wick in the latter, coincide tolerably well, we are led to conclude, that the Piney Tallow approaches nearer to animal tallow in its state of combustion, than any of the other substances employed; as indeed we might suppose, from its melting point being nearly the same.

It may be objected to these experiments, that they do not admit of sufficient precision to enable us to come to any accurate conclusion, and it must be admitted that they are only approximations to the truth. That I might be enabled to judge, however, to what degree of probable error I was liable, I had six candles of the best animal tallow, cast in the same mould as the rest, with wicks of twelve threads, and these I burned for one hour as before, using the same precautions. I first performed the experiment, snuffing them every ten minutes, and then without snuffing them at all, being desirous collaterally to ascertain what difference in the combustion the snuffing would cause.

The following are the reslts:

Snuffing every ten minutes.

Weight in grains, when lighted.	After one hour.	Loss
781	675	106
782	682	100
784	682	102
785	681	104
785	676	109
792.5	690	102.5

Without snuffing.

Weight in grains, without snuffing.	After one hour.	Loss.
673	573	100
676	573	103
676	570	105
681	581	100
681	580	101
689	592	97

It thus appears, that the maximum of difference has been nine grains in both sets of experiments, while the average in the former is 103-91 grains of loss, and in the latter 101-16. The degree of approximation to accuracy in the former experiments may be thus estimated.

I may incidently add, that it also appears that the consumption of material in a tallow candle, snuffed at intervals of ten minutes, is only 2-75 per cent. more than in a candle not snuffed, a difference very inconsiderable, compared with the difference of light produced.

The ultimate analysis of Piney Tallow being a point of some interest, much pains were taken to perform it with accuracy, and with the aid of my friend, Dr. Dowler, I succeeded in two separate experiments, in obtaining perfectly similar results, which I have so far reason to believe correct. The analysis was performed in a glass tube, by means of copper, in the usual method, and the water formed was detained in an acute bend of the tube, filled with a given weight of calcined rock cirystal, coarsely powdered; and immersed in a mixture of ice and salt. At the close of the process, this portion of tube was cut off, carefully corked at both ends, and immediately weighed. The water was then driven off by the heat of a spirit lamp, and the tube again weighed. I have thought it worth while to mention this method of collecting the water, as I am persuaded that it is more accurate thus to use mechanical means in detaining it than to employ

muriate of lime, or other chemical absorbents, which attract moisture so easily, as to make it difficult to weigh them, or to bring them twice to the same degree of dryness.

Result of the ultimate analysis of three grains of Piney Tallow:

Carbonic acid, 18 cubic inches, water, 3-30 grains:

Hence the three grains consist of

Carbon	2.31	= .770	=	10 atoms.
Hydrogen	.37	= .123	=	9 atoms.
Oxygen	.32	= .107	=	1 atom.
	3.00	100		

In a letter from Father D'Incarville, at Pekin, published in the *Philosophical Transactions* for 1753. a somewhat similar substance is described as the produce of China. His words are "the berries of the Tallow tree are of great use in the northern provinces, where there are few sheep Almost all the candles sold there, are made of the oil drawn from these berries. They procure this oil in the same manner that I have mentioned concerning the wax, (which is procured by boiling the matter rasped off the branches of the tree) and as this oil is not of so good a consistency as tallow, for its cohesion when candles are made of it, they dip them in the white wax mentioned. "The external coat thus made, prevents them from guttering. At Pekin, the same thing is done with tallow candles." That the Chinese vegetable tallow, and the Piney Tallow, are not the same substance, appears from the remark that the former is not of so good a consistence as mutton tallow, whereas the latter is decidedly harder, which is one of its advantages over that material.

By recent inquiry, I have ascertained that 500 cwt. of Piney Tallow may be procured in the town of Mangalore for fifty rupees, which is somewhat more than 2 1-2d per pound. At this moment it appears that not more than two tons could be purchased, since if we except the trifling quantity consumed as a medicinal application, it is only applied to one purpose, and manufactured only in one town. The tree, however, is so common throughout the western coast of the Peninsula of India, at least as far northward as the boundaries of the Province of Canara, that though the fruit is now turned to account, it would no doubt be brought into use were a demand created for a valuable product.

It would be out of place to enter into any detailed speculations respecting the elegibility of introducing this substance as a material for candles. It may however in general terms be stated, that it could be imported into this country at less than one-forth the price of wax, and though it does not possess all the advantages of that substance, it is still considerably superior to animal tallow.

ART. VIII

To the President and Members of the Agricultural Society of Charleston, S. C.

GENTLEMEN—Your indulgent reception of my former communication induces me to address you again.* Having endeavored to prove that the fundamental cause of failure in our agricultural pursuits arose from a deficiency of agricultural knowledge in the cultivators of the land, I now respectfully lay before you some suggestions which may be the cause eventually of removing this serious obstruction, and give rise to the most important and interesting results.

In every country really prosperous and happy, agriculture has been encouraged and supported. It is the momentum which gives impulse to every other occupation andpursuit. It diffuses happiness, eomfort and independence among a people, and awakens that love of country which insures liberty and success. Agricultural knowledge is the first and essential step in the march of civilization and improvement, and its perfectionis co-eval with the greatness and prosperity of a couutry. Every patriot in every age has felt the importance of this valuable pursuit. At present the legislators of almost every enlightened, free and prosperous country, direct to agriculture their peculiar care and attention; and in Great Britain, as you all well know, it is carried to a degree of perfection as wonderful as important. Immense heaths and large tracts of apparently unarable land have been there so improved, as

* Published in the 3d No. of this Journal.

to be highly productive and profitable; and it is astonishing how a territory so small, can give not only subsistence, but so many comforts and luxuries to a population so dense.* In our own country, we observe every one sensibly alive to the importance of agriculture; and the laudable zeal and exertions which are made by the wise and the patriotic through every portion of our widely extended territory, is a happy earnest of great and important results.

Every where we observe the distinguished politician, the learned jurist, and the successful soldier, alike devoting much of their valuable time to agriculture, thus setting an example to their fellow citizens, worthy of imitation Nor have you been idle. It must awaken feelings of honorable pride to see your Society, after struggling with innumerable difficulties, successfully overcome them, and by her noble example, give rise to subsidiary Societies through every portion of our State.

This is an important era in our agricultural history. The spirit of enterprize and energy is beginning to diffuse its animating influence, and we look forward with patriotic ardor and enthusiasm, to the immense consequences and multiplied blessings which may acrue. You have done much, but you are as it were, only laying the corner stone of your future (I trust) splendid edifice. You are the natural guardians of your country—to you she looks in time of need, for you are in every respect identified with her. To you therefore, I appeal with confidence, trusting to your indulgence, and the justness of what I propose.

The only method by which we can hope to make essential and permanent improvements (as I previously mentioned) will be to instruct young men in the principles and science, as well as the practice of agriculture.

To obtain this object, an agricultural Institution, under the guardianship of your Society, should be established. To this it may be urged that your Society has not sufficient funds. Suffer this not to deter you. What Carolinian who loves his country, would not contribute to the establishment of an institution of this kind—when we contribute so largely to our Northern institutions?

But admit that you could not raise a sufficiency from the liberality of our fellow countrymen, a fact not easily realiz-

* I am aware to her commercial enterprize she is much indebted for her wealth; but to her agricultural improvements she is no less indebted for those blessings which has made her inhabitants so celebrated for independence, prosperity, domestic comforts, and love of country.

ed, are there not a sufficient number of young men intending to become planters, whose attendance would amply repay the lecturers for their trouble? Would not likewise a spirit of emulation and consciousness of becoming benefactors of their country stimulate many, regardless of reward, to fill such honorable situations?* There can be no question. Let not trifling objections obstruct you in an enterprize so interesting and important. There never was any thing obtained without labor, and the greater the labor, the more noble and praise worthy the overcoming of it. If we were to look to the dark and gloomy picture of any enterprize, our ardor and enthusiasm would be paralysed, and there would be an end to all improvement. The great man in his progress, forgets all difficulties, or remembers them only to devise the means of overcoming them. Satisfied with the justness and usefulness of an object, he enters upon it with a firm, persevering and steady resolve, and makes things, seemingly impossible, yield to his untired exertions and enterprize. We have witnessed this in an eminent degree, in the successful and wonderful enterprize of the distinguished Clinton—and what would be the difficulties of the object I propose, in comparison to his. You have, Gentlemen, energy and talent—You have ardor and patriotism, and I am sure, will add this additional memento of our rapid progression in science and improvement. The advantages which may succeed a well organized Agricultural Institution, it is impossible to calculate. It will elevate the character of the agriculturist—draw many young men from idle and dissipated to industrious and economical habits—diffuse intelligence, industry and improvement through our country, and convert a class of men (I mean overseers as the are called) from being ignorant and undeserving of confidence, into intelligent valuable and industrious citizens, not only respectable, but adding respectability to their country. These important revolutions will be the consequence of immense improvements in agriculture, and no portion of our diversified soil but will be adapted to some useful and important species of cultivation.

I am sensible that it is difficult to overcome prejudices firmly fixed by habit, and that many will consider my plan as

* We have already a noble instance of this in Stephen Elliott, L. D. D. who is now delivering Lectures on Natural Science, which would do honor to any country on earth, without any compensation or reward except the respect and admiration of his countrymen.

chimerical and impracticable. In answer I have to say, so are all things considered until a fair and impartial trial is made. In other countries, Agricultural Institutions are established, and I cannot see why in a country where its wealth and power consists in its agricultural productions, such an institution should not succeed!! An error, the effect of ignorance, has pervaded the minds of many that the practical man only is successful. If the practical man had science likewise, how much infinitely greater would be his improvements? How many errors would he have escaped. losses spared, and time saved, which was lost in unphilosophical experiments to obtain the knowledge which experience gives. Mechanical experience in every department of knowledge, is obtained at immense sacrifices, and is at best hypothetical and altogether the effect of accident. True experience is founded on observation and research, and it is the especial province of science to be governed by such principles. The object of science is the attainment of truth, and the agriculturist who follows its principles.and is governed by the experience which it points out, may hope for success and improvement. It has been the error of the practical man to mistake the visionary speculations of the theorist for science. But science has its foundation in truth, and all its principles are sound and just. But even theorists are so far important that they give rise to enquiries and investigations which otherwise would not have excited attention. The immense and interesting mass of geological facts, (for instance) which have in a few years been collected, arose from speculations upon the formation and structure of the earth, altogether theoretical; and so it is with every other department of knowledge. Mechanical operations, it is evident without scientific principles, must retard improvement, and retrogression in place of progression, be the result.

But why specify to so enlightened a body absolute axioms. In every country of the earth, in every age, their rise or fall have been materially influenced by the progress of science and intellect; and to tell you that this alone can make our country great and prosperous, is but to tell you what you must all feel and know. A few words more Gentlemen, and I am done. It is the duty of every country to give every facility to their youth, for the attainment of every branch of education. With us this is imperatively required. In consequence, our legislature has established free Schools and a

College, the beneficial influence of which has been greatly felt, and the Medical Society has established a Medical College, the success of which we all must wish. It remains for you to give another evidence of our public spirit and patriotism.

Having thus occupied your attention with these preliminary remarks, permit me respectfully to lay before you the following plan of a School which may be organized.

1st. A School should be organized, to be called *The Agricultural School.*

2nd. Young men in attending the Lectures of this School, will be required to be placed in the winter, if practicable, under some experienced planter, to learn the practical principles of Agriculture.

3d. The following Lectures be delivered in the summer, say from 15th of June to 15 of September; the Lecturers being appointed by the Agricultural Society, viz.

1st Lectures on Agricultural Chemistry.

2nd. Lectures on Mechanics and Mechanical philosophy.

3d. Lectures on Practical Agriculture including Farming in its most extensive sense.

4. The Lecturers to receive as compensation ——— from each person attending the Lectures.

5th. A certain number of young men attending for the purpose of superintending plantatations, admitted gratuitously.

This plan is submitted to your consideration, to be modified according to your maturer judgment and wisdom If an Institution could be established here, the revolution which would take place in the character and occupation of many of our young men would be incalculably great. The summer, now wasted in ennui and dissipation, would be delightfully employed in the attainment of useful knowledge, and many who might otherwise be useless members of society, may become benefactors of their country.

I will not attempt farther to urge the multiplied blessings which might accrue to our City and State, and the accumulated wealth and strength of character which would ensue. To say more to so enlightened and patriotic a body, would either imply a want of patriotism on their part, or a dereliction of duty as guardians of our agricultural interests.*

I have the honor to be, Gentlemen,

A WELL WISHER TO AGRICULTURE.

* We invite a discussion on this interesting topic, through the medium of our Journal, and shall be happy to hear some other opinions on the subject. EDITORS.

ART. IX.

Biographical Notice of Baron Percy.

From the London Medical Repository and Review.

Baron Pierre Francois Percy, whose death was not long ago announced in the Parisian journals was attached, during the greatest part of a long and active life, to the medical department of the French army, in what may be justly considered as the most active and brilliant part of the military history of France. He filled the office of Inspector-General of the Service of Health of the Army, and was a Commander of the Legion of Honor, and a Member of the Institute. He was born in 1754, at Montagney, in the department of the Haute-Saone. He very early concieved a predilection for surgery so strong, as to overcome the great dislike of his father to a profession which he had himself followed, in the capacity also of a military surgeon, but from which he had retired in disgust. Young Percy studied at the College of Besancon: and although he made an attempt to devote himself to mathematics, with a view of qualifying himself for the engineer service, he soon became passionately fond of anatomy, and made so much progress in that science, as very early to be appointed a teacher of it, holding the office which used at that time to be called 'prevot de salle.' In 1775, he obtained the degree of Doctor, which, in consequence of his having gained some previous prizes, was conferred upon him almost gratuitously. He entered the French *gendarmerie* at the age of twenty-one, as assistant-surgeon, and remained attacked to that service five years and a half; it was in some part of this period that he gained much praise from many, and as much blame from others, on account of two able critical pamphlets published by him, the one levelled against a country practitioner, who made and retailed pills denominated 'grains of life,' (which, however, appear to have been merely a common dinner pill,) and the other directed against an indifferent work on the subject of midwifery, the author of which had been, nevertheless, rewarded with a lucrative staff appointment. About this time he was the author of a memoir, which was very extensively circulated, on the use of

a mixture of sulphate of potash, muriate of soda, and other salts employed in the process of vitrification, and hence called *fiel de verre*, in some diseases of domestic animals; having paid much attention to the veterinary art, under the direction of the celebrated Lafosse. In 1782, M. Percy joined the cavalry regiment *de Berry*, as principal surgeon; and two years afterwards he gained a prize at the Academy of Surgery for some improvements in surgical instruments, and particularly in scissors; he was again distinguished in the following year on account of some suggestions for limiting the number of instruments employed in the extraction of foreign bodies; and the third year for some improvements in cutting instruments, particularly in the bistoury. In 1790, he obtained the first prize for his remarks on the actual cautery. He was then named an Associate of the Academy; and we are not surprised to hear that he was requested not to try for any more prizes, in order that the arena might be left more open to his numerous and much discouraged rivals.

He was equally advancing, in the mean time, in his military career. Whilst encamped at St. Omer, he was appointed surgeon-in-chief for Flanders and Artois, his emoluments were augmented, and he was commissioned by the war council to attempt the establishment of regimental hospitals. When war was actually declared, he was named consulting surgeon for the army of the North, in the place of Sabatier, whose age had incapatiated him from the various and important duties of an office which called for the utmost activity of body and mind. During several campaigns, under Luckner and Kellerman, he received very honorable testimonials of his zeal and courage; but becoming, for some unknown reason, obnoxious to the Council of Health, that body required from him certain proofs of his capacity, which seem to have excited his indignation; knowing himself, at the same time, to be surrounded by spies, and not wishing to set an example of disobedience, he replied to the questions proposed by the Council, but, to the confusion and ridicule of them, instead of transmitting his replies privately, printed them at Metz; conscious not only of being superior to his inquisitors, but of being generally esteemed so by the public. Although these replies are said to have been composed in the short space of twenty-eight hours, it is supposed that they have furnished both facts and opinions to some other writers who have affected originality.

It is one of the distinguished advantages of the art of healing, that it tends to lessen the sufferings and miseries of mankind; even the horrors of war admit some mitigation in proportion as nations become wise and humane enough to provide for proper attendance on the sick and wounded. In this department of duty, M. Percy promoted improvements highly servicable to the country which he served, and which were long admired, and at last happily imitated by others: to the remembrance of these exertions he must have looked back with satisfaction and complacency, when, as age approached, and the fortunes of France underwent a memorable change, he shared in the disgrace and reverse of his former patrons. Under the auspices of Pichegru and Moreau, M. Percy instituted the moveable corps of surgery; and such was the effect of his individual energy, that the military surgeons under him became remarkable for the care they took of the sick in the field of battle, and under the most murderous fire. When in the Peninsula, also, he formed the first battalion of soldiers of ambulance, almost at his own expense, with a special company of *brancardiers*, a kind of orderly, whose office it was to assist the wounded, and to carry a particular sort of litter of which he was the inventor: but the French government does not appear to have seconded those meritorious efforts as they deserved, or others, the tendency of which was to improve the medical department in many important particulars.

In the dreadful scenes of the revolution, when a difference of banner was sufficient to convert fellow-countrymen into the deadliest foes, M. Percy frequently exposed himself to the chance of losing his liberty or his life in his endeavors to save such of the royalists as had fallen into the hands of his own party: and he is said to have secreted many of the unfortunate persons at different times, affording them not only professional aid, but the assistance of his purse. On several occasions, in the course of the numerous engagements at which he was present, he received wounds, incurred by his determination to support the confidence of the soldiers by the certainty of surgical care. He was conspicuously distinguished when the French were driven from Monheim, by the Archduke Charles. M. Percy resolutely refused to quit the city until all the wounded were removed; and Lacroix, an officer of the *corps du genie*,* being dangerously wounded,

* At present one of the first mathematicians in Europe.

and in hazard of his life, he carried him, at the great risk of his own, on his back, across the Rhine, although the bridge was furiously cannonaded by the enemy, and was literally falling to pieces under his feet; this gallant and humane action was performed within view of the French soldiers, who animated the heroic physician by the most enthusiastic cheers.

Under the consular government, Percy was named one of the six inspectors-general of the service of health of the army; and he enjoyed a great share of the confidence and esteem of Napoleon. In 1814, when twelve thousand wounded soldiers were under the walls of Paris, without shelter, provisions, or any kind of comfort, they were promptly provided for by the judicious regulations suggested and most ably carried into effect by him; for which critical service he received many marks of recompense from the foreign potentates, being invested with the order of St. Ann of Russia, the order of Civil Merit of Bavaria, and of the Red Eagle of Prussia, &c. In the following year we find him a member of the Chamber of Deputies, as the representative of his native department, la Haute-Saone; but he only appeared in the senate two or three times, and never spoke, excepting once in favor of wounded soldiers. On the return of Bonaparte from Elba, he was again called to act as chief surgeon to the army, and his public life may be said to have terminated at the memorable battle of Waterloo. He was soon afterwards removed from an office he had so ably filled, and in which his health and time of life promised that he might have long been useful, and removed, without receiving any title or any reward to soften the rigors of a forced retreat. After this, he very wisely betook himself to rural arts and the quiet duties of a country life, continuing, however, to prescribe for and assist the poor in his neighborhood, and particularly during 1816, which was to them a year of great want and privation. He was happy enough to have an amiable wife, the mildness of whose temper, and the resources of whose mind, made his years pass away tranquilly and happily, and prevnted any feeling of regret for the active life he had quitted, and the power of which he had been deprived.

His death is attributed to a chronic gastritis, complicated with a disease of the heart, and was preceded by very severe sufferings, although his intellectual faculties remained unimpaired. He neither desired nor feared the approach of death, of which he spoke with his family quietly and calmly. He

was buried in the cemetery of Pere La Chaise, and many fu neral honors were paid to him by eminent professional persons, and particularly by his distinguished colleage, Baron Larrey, who seems to have entertained the greatest affection for him.

The principal works of Baron Percy are: *1st, Manuel de Chirurgien d'Armee; 2nd, Pyrotechnie Chirurgicale Pratique, ou l'Art d'appliquer le Feu; 3d, Eloge d'Amuce Foes; 4th, Eloge Histrique de Sabatier; 5th, Traite des Instrumens de Chirurgie, et specialement des Ciseaux;* besides many papers on points of civil and military surgery, and numerons articles in the *Dictionnaire des Sciences Medicales.*

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

ANATOMY.

M. Reil *on the Preparation of the Cerebellum for Dissection.*—The cerebellum of the male should be selected, and of one who may have died in manhood of some chronic disease; it should be in as fresh a state as possible; the brains of those who have died of typhus lose their consistence too soon for this purpose; and where inflammation of the brain has existed the membranes are not easily separable. The cerebellum may be detached by dividing the cerebri above, and the medulla oblongata below: it should then be placed in a bason under water, and the membranes removed with forceps: the membranes are prevented from drying, and the blood exudes more freely when the part is thus immersed in water. The denuded cerebellum is now to be placed in a vessel, and to be twice washed by the affusion of brandy, which may be suffered to remain on it some minutes; afterwards alcohol is to be substituted, in which it should be twelve hours. When in this way, the surface is somewhat hardened, the membrane is to be removed from the deep furrows, in order that the spirit may everywhere penetrate the mass: the spirit is then again to be poured over the prepara-

tion, which may stand a day or two. Finally, the alcohol is to be renewed, and the vessel closed and set by two or three months, till the part has acquired a greyish color, and is thoroughly hardened. It is right, during this time, to turn the preparation occasionally, and to contrive that every surface of it is freely bathed in the spirit.

M. Bogros *on the Structure of the Nerves.*—The author of this Memoir observes that two substances enter into the composition of the nerves—the neurilema, composed of cellular tissue, and the medullary fibre. The ganglia are considered as composed of two parts: the medullary threads, in fact, penetrate into them, are stripped of their neurilema, are rolled up, and (as it were) united together by a particular substance, sometimes greyish, at others yellow or reddish. M. Bogros subjected the nerves to new experiments; from which it results, that, independently of the neurilema and the pulp, a central canal is to be recognized. With the assistance of tubes, nearly resembling those by which mercury is injected into the lymphatic vessels, but with finer points, he succeeded in injecting the nerves. No preliminary preparation is required for the experiment; it was even performed upon living animals.

M. Bogros found that when a nerve is pierced by the point of a prepared tube filled with mercury, the injection runs through all the filaments furnished by the nervous chord, to their furthest extremeties; it may be traced in the papillæ of the skin, the mucous membranes, and muscles; the injection also extends itself towards the origin of the nerve; and lastly, when thrown into a single filament, it always extends to several others, by means of anastamosing canals. If, after having injected the nerve, it is cut, a round and regular opening is to be observed in the centre of the pulp; and, even without the injection, if the centre of the pulp is carefully examined, an obscure point may be seen—that is the opening above-mentioned; and by placing the point of thetube in this place, the nerve is injected.

When a nerve is deprived of its neurilema by nitric acid, similar results are obtained: when, on the contrary, the pulp is destroyed by an alkaline ley, injection is performed badly; it stops, and does not present the same regular and cylindrical aspect. If spirits of turpentine are injected, and the nerve is then dried, the structure of the canal is visible

to the eye. Mercury flows through the filaments of the great sympathetic nerve, and shows canals similar to those found in the other nerves. Thus, an injection thrown into the inferior cervical ganglion has penetrated through the cardiac nerves to the heart; and, from the branches that extend from it. When the injection reaches the ganglia, they swell, and present the appearance of a number of canals communicating with each other, and turned and twisted upon themselves.—The injection of the intervertebral ganglia takes place in a peculiar manner: they swell immediately; afterwards the injection penetrates into the venous network, situated between their proper surface and the covering with which they are furnished by the dura mater, and thence into the veins of this membrane itself. At last, the injection is seen to pass across the roots, and to fall into the cavity of the dura mater; a result which arises either from ruptures easily made in this point, where the pulp is very soft, or from this effusion taking place through natural openings. An injection cannot be thrown into the roots, nor a fortiori into the spinal marrow: it could not pass above half an inch when the pulp was torn, from whence resulted an opening through which the mercury escaped. The injection penetrates into the veins sometimes, but never into the arteries or lymphatics. The anastamoses take place by the meeting of the medullary canals, or by a confusion of the pulps: where they take, the nerve increases in size.

The injection has been performed on living frogs. At the beginning, convulsions were produced; when it was finished, a perfect paralysis was produced. These experiments have been repeated on the four classes of vertebrated animals. In an anatomical point of view, this discovery is very valuable; physiologically, the existence of a canal in the nerves opens a vast field of inquiry; and as there is a law in the animal economy, that every cavity which is not lined by a mucous or serous membrane, is closed by an adhesion of its sides, if it is not preserved by the presence of some other body, is it not, therefore, probable that the medullary canal serves for a kind of circulation?—*Anderson's Quarterly Journal.*

Preservation of Anatomical Preparations.—M. Bracconnet of Nancy has applied the persulphate of iron, in consequence of its astringent and antiseptic properties, to the preservation of anatomical preparations, &c. It is very cheap, and com-

bines, with the greatest facility, with all the humors and soft tissues of animals, and preserves them both from putrefaction and insects. A brain which had been plunged for three months in a solution of the salt, being put into a warm place, required a considerable time to dry it, but without shewing the least sign of putridity; placed afterwards in water, it was still preserved for some time, but did not recover its pristine softness. Portions of the liver, spleen, lungs, and muscle placed in this salt, have equally resisted destruction.

Archives Generales, June.

Dr. Macartney, of the Dublin University, cover his preparation jars with a thin plate of Indian rubber, which is afterwards varnished. This is found to be very superior to lead or bladder, retains alcohol when used very perfectly, and adapts itself readily to the variations of volume in the contents of the jar, from differences of temperature.

Lon. Quart. Journal of Science.

PHYSIOLOGY.

M. DEFERMON *on the Section of the Pneumogastric Nerves.* We think that the following conclusions of the learned Editor of the Bulletin, are more likely to prove correct than those of Dr. Wilson Philip upon the same subject. From experiments on various animals, M. Defermon says, he has uniformly observed that there was little difference in the duration of life, whether the continuity of the nerve was reestablished after its section by means of a good or bad electric conductor, or whether it was not established at all. He also uniformly observed:

1. That in the two cases, digestion always took place, and that the differences of digestion and respiration seemed to be proportional to the sufferings the animal had undergone in the operation,

2. When digestion appeared to be most advanced, the animal had sustained the least injury from the section; and large animals lived longer than small ones, which were very speedily seized with asphyxia.

3. The more the lungs are gorged with blood, the more rapid is the asphyxia, and the less advanced is digestion.—That is, the alimentary substances in the stomach are very little altered, and little moist, inducing us to think, that the fibres of the great sympathetic running to the stomach, must

have some influence upon the quantity of the gastric fluids, which, according to the experiments of MM. Leroyer and Prevost, are indispensable to digestion.

4. Mechanical irritation of the inferior part of the pneumogastric nerve did not appear to accelerate digestion; or render it more complete.

5. In causing a galvanic current to pass after the section of the pneumo-gastric nerves, the gorging of the lungs is retarded, and the food contained in the stomach is sensibly different from that in the stomach of animals, on which the section has been performed without the galvanic current.

6. All these circumstances, important as they seem, are only accessory: the real differences depend on the quantity of gastric fluids flowing into the stomach; and the younger the animal is, that is submitted to the experiment, the more copious these fluids will be.

7. The wrinkles of the stomach indicate that much fluid is poured into it during digestion. We can at pleasure produce these wrinkles, by swallowing seltzer, or soda water, a fact which proves that they depend on the presence of the gastric juice.—*Anderson's Quarterly Journal.*

The Living Skeleton.—The miserable object, who has for some time been exhibited in London under the above title, has been made the object of so much misrepresentation, for the purpose of exciting public curiosity, as to render authenticated particulars with respect to him in some measure interesting even to professional men. We are induced for this reason to give insertion to the following detail, the accuracy of which may, we are inclined to believe, be relied upon.

In person this wretched being appears to be about five feet seven inches in neight, and is reported to be about twenty-eight years of age. His general appearance is that of a man in the last stage of some chronic disease: his extreme emaciation, the expression of his countenance, the langor and want of energy in his movements, all contribute to produce this impression.

The upper extremities are much more reduced in proportion than the lower. This is particularly the case with respect to the upper-arm, which scarcely exhibits a trace of any thing but bone covered with integument; while the fore-arm presents some appearance of muscle, though certainly only in a very faint degree: nevertheless the limbs can be

raised in almost every direction, to a position nearly horizontal.

The lower extremities, and particularly the legs, are less reduced in size than in many persons wasted by disease; the legs indeed, and more especially the right, are by no means deficient in muscle, the *gastrocnemii* being sufficiently well marked.

The trunk of the body presents several deviations from the natural structure. Thus, the *sternum*, instead of being convex or flat externally, is bent inwards, or pressed towards the vertebral column, so as to diminish very much the capacity of the thoracic cavity, and more especially at its upper part. Lower down, the ribs form a longer curve than usual, and the spine being somewhat inclined to the right, the left side appears much more full than the other. The pulsations of the heart are felt between the seventh and eighth ribs.

The position of the *scapula* is likewise peculiar; for the superior *costa* is drawn much more forward than usual, and the inferior *costa* in consequence is thrown considerably outwards, (instead of lying flat upon the posterior surfaces of the ribs) and the bone is raised upwards, so as to cause the individual to appear short-necked and high-shouldered. This circumstance, with the color of the skin, and more especially of the countenance, which is peculiarly pale or rather livid would induce the belief that respiration and the function, connected with it, are laboriously and imperfectly performed.

The abdomen occupies a very small space, and sinks inwards towards the spine; the distance between the edges of the lower ribs and the *cristæ* of the *ilia* is at the same time very small

The skin felt cold and dry, and seemed to be quite destitute of hair—the pulse was small, and about sixty—the voice not very deficient in strength. In addition it was stated, that he eats and drinks very sparingly; that he digests and sleeps well; that his excretions are natural and regular; that his mental faculties are sufficient developed; and finally, that that the sexual passion exists, but has never been indulged.

Lon. Med. Repository.

PATHOLOGY.

Cicatrization of an Ulcer in the Stomach of the late Professor BECLARD.—It is remarkable that Professor Beclard,

whose premature death has excited such general regret, should even, after his death, contribute to the promotion of the sciences that he cultivated with unremitted ardor. The circumstances we are about to relate also furnish a striking instance of the influence of a rational treatment and strict regimen, over the inflammations of the alimentary canal.

About six years from this time (1825,) after great exertions (mental,) and prolonged watchings, during which he took large quantities of coffee, in order to enable him to continue his studies during the hours usually devoted to sleep, he experienced the symptoms of gastritis, which speedily assumed a chronic form: he vomited up the greater part of his food, and suffered frequent internal pains.

From that period he restricted himself to a very moderate regimen, employing local blood-letting a few times, and frequent frictions on the epigastrium with tartar emetic ointment. It was long before he experienced any considerable relief, which, however, did not prevent him from persevering in his strict regimen, and in the habit of not eating or drinking any thing which could stimulate the stomach. He ultimately succeeded in calming the pains in his stomach, which returned only at very distant intervals.

It is unnecessary to say, that his death was the result of an affection of the brain. On examination, a cicatrized ulcer was found in the stomach, situated on its lesser arch, about four lines from the cardia. It was as large as a franc piece; its surface was depressed, and was traversed by a firm cellular band, on each side of which was a fossa, the fundus of which was formed by the peritoneal coat of the stomach. The edges of the ulcer were neither red nor swelled, and the rest of the stomach was healthy.

It may be presumed, that without firm and constant resolution on the patient the ulcer would probably never have cicatrized; and that the least deviation in point of regimen might have caused a rupture of the stomach —*Billard de la Membrane Muqueuse Gastro-Intestinale, &c. &c.* p. 558.

LARVÆ OF INSECTS *in the Human Stomach.—Case, with Remarks,**—CASE.—A strong athletic countryman, who had been employed in the hay harvest towards the end of June, was in the following month attacked with an uneasiness in the stomach; which gradually increased to pain, occasional-

* Extracted from a paper by Dr. Yule, of Edinburgh, in the Edin. Phil. Journal

ly severe, together with total loss of appetite, emaciation and great debility.

For some time the remedies usually administered in cases of indigestion were employed, but without any permanent relief. At length, after several weeks, a large hairy *catterpillar* was ejected from the stomach during a fit of vomitting, and from this time the patient daily improved until he recovered his former health.

Remarks.—From the circumstances of the case, it was impossible to ascertain with precision, the nature of the insect to which this *larva* belonged; but the bands of black and brown longitudinally extended, and the long hairs with which it was beset, would induce us to refer it to the numerous tribe of moths (*phalenæ*) or to certain *tipulæ*, termed dragon-flies in this country (Scotland) by the common people.

To whatever species of insect, however, it belonged, it must have lived for several weeks, and grown to its full size, in the stomach of the patient, as the symptoms under which he labored during this period, cannot reasonably be attributed to any other cause than its presence in that organ.

Cases of this kind are occasionally reported, and demand, perhaps, more attention than they have in general received of late years. The subject, however, is involved in much obscurity, from the difficulty of ascertaining the nature of the *larvæ* ejected in most instances; for naturalist have hitherto paid but little attention to the structure and appearance of insects while in this stage of their existence. Some facts, however, upon this point have been ascertained, which shew that *larvæ* of very different kinds may inhabit the human stomach. Thus, Dr. Reeve, of Norwich, in an early volume of the Edinburgh Medical Journal, mentions a case, in which the *larva* of the common house fly (*musca domestica*) was voided by a girl, after it had been the cause of much distress; and an instance is given in the useful and popular work of Kirby and Spence, of several *beetles* (*tenebrio molitor*) having been vomited by a boy. The *larva* of this insect, we may remark, is the *meal-worm* of the country people, now little known from the general custom of using wheaten bread, instead of oatmeal cakes as formerly.

Case of TYMPANITES PERICARDII.—Mr. Scott, of the Haymarket, aged about forty-seven, had, for three or four years, been declining in health, but had not been under medical

superintendance, till a few weeks before his decease: no regular history of the complaint, therefore, could be obtained. He stated, however, that his appetite and strength had gradually declined, but his chief complaint was a fluttering, a palpitation, and a sense of anxiety about the region of the heart, with disturbed sleep and frightful dreams.

'When seen a few weeks before death, his countenance was like that of a person in a state of anæmia, except that there was also a chloritic tinge in the skin; the pulse was full, quick, and irregular; there was a tendency to œdema about the ancles; the appetite was almost entirely gone, and the patient felt approaches to syncope on using any exertion, or ascending stairs. His mind was desponding, and temper irritable; the motions from his bowels were perfectly healthy; the chest in every part resounded remarkably well, and in the region of the heart, *percussion* elicited as clear a sound as in any other part; the impulse of the heart against the ribs was very feeble, and scarcely audible; it was also irregular, in correspondence with the state of the pulse.'

The patient died suddenly in February last, and the following appearances are recorded by Dr. Johnson, as having been observed on examination after death; he was himself present.

'The body extenuated, but still there was some peculiarly yellow fat on the chest and abdomen; the muscles, though wasted, were of a vivid red color; all the organs in the abdomen were sound; on opening the chest, the lungs presented a beautiful blue appearance, sparingly mottled with white; they were very sound. Between the lungs there presented itself a pellucid membrane distended with air. This was found to be the pericardium, reduced to a most extraordinary degree of tensity, and distended with a considerable quantity of air. The heat was small, not half filling the pericardium, and extremely degenerated in substance; a great part of its muscular structure being converted into a kind of fat; the whole was so lacerable, as scarcely to bear handling; the parieties of the left ventricle were not more than a quarter of an inch in thickness; the internal surface of the cavities were pale, wasted, and not containing a single drop of blood; neither was any blood to be seen in the large vessels issuing from the heart; there was nothing particular in the structure of this organ.'

Dr. Johnson adds, "That he has met with several cases

where the heart was in the degenerated condition, but never before observed such a distension of the pericardium by air;' that it is quite evident, from the size of the pericardium, and its extreme tensity, that this collection of air must have been of some standing, 'and that this phenomenon accounts for the region of the heart being as sonorious as any other part of the chest, which is not usually the case.'

Anderson's Quarterly Journal.

Note.—This report is highly interesting, on account of the rarity of the disease to which it relates; so rare, indeed, that Morgagni says he never saw an example of it, and Dr. Baillie seems to have been equally unfortunate.

SURGERY.

Mr. Liston *on Lithotomy.*—The author attributes the numerous deaths which occur after the operation of lithotomy to exhaustion from a protracted operation, and to infiltration of urine afterwards. We shall extract Mr. Liston's remarks on the latter.—*Anderson's Quarterly Journal.*

"In order to do away with the danger, and also to facilitate the extraction of the stone, the external incision should be made extensive. It should be made to pass well by the side of the anus. All stricture occasioned by the levator ani is to be relieved, the rectum being pressed to the one side by the finger of the left hand. The staff is then, and not till then, to be felt for in the upper part of the incision, under the symphysis pubis (where it is covered merely by the membraneous part of the urethra,) and the incision into the neck of the bladder made from thence. In making the incisions thus, the operator does not interfere with the management of the staff; the surgeon assisting keeps that instrument well lodged in the bladder, and hooked firmly against the symphysis pubis, so as to afford as much room as possible betwixt the urethra and rectum. It is not moved from the position from the time of its introduction, until the opening into the bladder is completed.

"The preliminary incisions are made of course, with a sharp pointed knife, and is of little consequence whether those in the bladder are performed with a beaked one or not. The greater number of those surgeons who have studied this and other operations on the dead body are agreed, that the internal as well as external incisions can be very well executed with the common operating knife. An opening sufficient to

admit the finger easily, is made by simply pushing the knife along the groove of the staff, and raising it a little upon the point, and through this, a stone of considerable size can readily be made to pass; if, however, the stone is found to be of a large size, a narrow probe-pointed knife will be found the most convenient instrument for enlarging the wound sufficiently."

HYDROCELE.—M. Larrey presented a young military man at a late sitting of the Section of Surgery of the French Academy, on whom he had performed a radical cure of hydroche, without employing any other means of exciting inflammation in the tunica vaginalis, than allowing an elastic gum catheter to remain for a few moments within the opening.

Dr. B. B. Simons has informed us, that several years since he cured a gentleman by the same means, except that the bougie was permitted to remain for some time.—EDITORS.

Large calculus passed from the Female Urethra.—A case is related by Dr. Sommer, in the Journal der Chirurgie und Augen-Hailkunde, (band 7, heft i.) in which a female, of nineteen years of age, after suffering from pain in passing her urine, and occasionally retention of it, had a catheter introduced, by which a stone was discovered obstructing the passage. The urethra was dilated by ferceps; the stone was grasped by them, and withdrawn. It was found to weigh ten drs. and a half; its long diameter measured two inches and a quarter; the transverse diameter was one inch and a quarter: it was of a whitish grey color, tolerably hard, and rough upon its superfices. The patient soon recovered.

Extirpation of the Clitoris.—An interesting, but unnecessarily detailed, account of this operation is given in Grafe and Walther's Journal der Chirurgie und Augen-Heilkude, (band 7, stuck i.) The subject of it had existed in a state of complete idiotism from a very early age. Many ineffectual endeavors were made to afford relief by several celebrated German practitioners, as it was considered that the mental affection was dependent upon corporeal disease, and therefore susceptible of cure. At the age of fifteen years, the wretched creature was still living in a complete state of imbecility; and it now became necessary to confine her arms in bed, to prevent her from committing incessant masturbation. As her intellectual faculties had for a short time appeared some-

what improved, it became a matter of considerable importance to put an effectual stop to the vice, which would so certainly have been the cause of her remaining in a state of mental hebetude.

After many fruitless efforts to effect this purpose by other means, the extirpation of the clitoris was had recourse to, in the month of June. The patient was watched, and her libidinous propensities gradually decreased. From this time her mental powers slowly improved. She learnt to write her letters, and was capable of receiving other instruction. She endeavored to atone for her imperfect powers of speech, by expressive signs. She made some progress in music.

Two conclusions are drawn from the case, by the anonymous relator of it:

1st. That idiotism is curable, if it is not dependent upon some congenital malformation.

2d. That onanism, particularly when carried to excess, will confirm a state of idiotism.

It is observed that, although the disgusting practice of masterbation undoubtedly confirmed the mental imbecility of the patient, it might still be difficult to determine the primary cause of the idiotism. Self-pollution could hardly have taken place at a very early age, and yet the state of fatuity was complete; and the latter part of the treatment consisted almost entirely in overcoming the disposition to the commission of the vice referred to.

Fracture and Consolidation of the Clavicle of a Fœtus in Utero.—M. Devergie reported the case of a woman, who, in the sixth month of her pregnancy, struck her abdomen violently against the edge of a table, in falling from an elevated chair. The pain was very severe, and lasted a considerable time: at length however, it disappeared, and at the usual time she was brought to-bed of a healthy child, but which presented a large tumor in the region of the left clavicle. The child died on the eighth day; and, on examinging the body, a fracture of the clavicle was discovered: the two fragments of the bone had wrapped over each other a little, and were united by a solid and voluminous callus, which formed the abovementioned tumor. The two ends of the bone had also acquired a growth much greater than is met with in a healthy state. The author attributes this accident to the fall which the mother received two or three months previously.

MIDWIFERY.

Case of Rupture of the Uterus, in which Gastrotomy was successfully performed; related by Dr. L. Frank, *Physician to the Archduchess Maria Louisa.*—Angela Grossi, of Parma, aged 44, had borne five children, and had reached the ninth month of her pregnancy, without the occurrence of any accident. On the morning of the 9th of August, 1817, labor commenced; and whilst standing up, she was seized with a faintness, accompanied with vomiting. She was therefore placed an her bed by the assistance of her husband and the midwife. At that moment she stated that she experienced a feeling of laceration in the abdomen, and also a sensation of there being two children. A surgeon, who was called in, asserted that the effort of vomiting had carried the child upwards, adding that another might propel it downwards, and advising the patient to remain quiet.

The midwife, however, remarking that the abdomen swelled, that the vomiting did not cease, and that the breathing became irregular, called in Dr. G. Rossi. On examination, he detected a rupture of the uterus; and on consultation with his father, and other medical men, it was unanimously resolved to have recourse to gastrotomy.

Two hours after the occurrence of the accident, the operation was performed by Professor Cecconi, in the left hypogastric region, precisely at the point where the feet of the child were felt. When the incision was made, the child presented with the feet, and was extracted alive, together with the secundines. No bad symptoms are alluded to, and it is stated that the patient was perfectly recovered forty days after the operation. Three years afterwards she had a seven month's child, which lived a fortnight After her recovery, a ventral bernia presented itself in the cicatrix, which, though irremediable, was not productive of much inconvenience.

Remarks.—It will be remarked, that the history of the above case, as related by Dr. Louis Frank, is deficient in some imostimportant particulars. Not to mention others, he has omitted to state whether any attempt at delivery by the vagina was made, or whether the endeavors for that purpose proved unavailing.

Extirpation of the Uterus.—'The operation for extirpation of the uterus has, since the beginning of the present century, been performed in Germany no less than six or seven times

The first of these operations was (in 1803) successfully performed by Osiander in Gottingen, on a woman from whom he had, seven years before, removed a cancerous tumour of the uterus.

'In 1813 the operation, or rather only the removal of a tumour from the *cervix* uteri, was performed by Profesor Rust of Vienna, but unsuceessfully, as the patient only survived eight days after it. In 1817, Langenbeck extirpated a *prolapsed* uterus, and with success. In 1822, Santer performed the still more difficult operation of removing an *unprolapsed* uterus, and since that time the same operation has been attempted in Berlin, Hanover, and Vienna. Of these attempts, two at least were unsuccessful—the resnlt of the third is not yet published.

'This operation, though of late years revived, is not one of modern invention. In *Sue*, (*Hist. des Accouch. Par.* 1786,) we find an account of the extirpation of the uterus having been successfully performed as early as the year 1560, by Andreas a Cruce, physician and professor at Venice. Nay, the removal of the prolapsed uterus was successfully effected twenty years before that period (in 1540) by one Carpus; and, in the beginning of the seventeenth century, the same operation was also performed by Zactus Lusitanus. In the same author also (*Sue*) are to be found several other cases, both successful and unsuccessful, of this operation, which proved that it is not one of modern date.

'These accounts, however, are not very explicit, and contain neither a description of the operations, nor a very accurate statement of the circumstances under which they were performed; and it is to Osiander, undoubtedly, that the merit belongs, of having improved this part of surgical science, and of having first systematically described the manner in which the operation should be effected.'

Edin. Med. Journal.

Case of Cæsarian Operation, by Dr. SCHONBERG, *of Naples.* (*Salxbargh, Medicinisch-Chirurgische Zeitung, May* 27, 1824.)—Elizabeth Hugh, twenty-eight years of age, of very short stature, and when a child affected with rickets, had for several years past been subject to very severe attacks of convulsions, and on the 7th of August, 1823, towards the end of her first pregnancy, labor-pains came on. At the same time she was seized with convulsions, which resisted every means I could try, and continued for thirteen or four-

teen hours, wherefore I determined on delivering the woman. On a close examination, I found the mouth of the womb was dilated, that the waters had escaped, and the head of the child was foremost, but that the pelvis between the rami of the ischiæ and pubes was extremely narrow, not more than two inches in width. Under these circumstances I called in a physician-achoucheur, who found the woman in this state, but had not an opportunity of ascertaining if the child was alive or not; a circumstance which was to decide whether we should have recourse to the Cæsarian operation, or the perforation of the head of the child. In consequence of the uncertainty whether the child was alive or not, and the frequency of the labor pains, we determined to wait till the following morning. August 8th.—The woman rested the whole of the night, and this morning felt considerably refreshed.—In our examinations we could distinctly feel the motions of the child, which lay with the face foremost, and thus we decided on the Cæsarian operation, which was performed at two in the afternoon by H. Leuch, one of the surgeons to the hospital. An incision was made in the course of the linea alba, from about an inch below the navel to the pubes, and with a second the uterus was opened when in a state of contraction, a labor-pain having occurred at this step of the operation The fingers were then introduced, the opening in the uterus enlarged, and the placenta detached. The membranes were now ruptured, and the child in part removed from the womb; but just as the head was about to be withdrawn, the uterus contracted round the neck of the child, and it was with some difficulty that the head could be extricated. The intestines now fell forwards, and were obliged to be kept back by an assistant; the placenta was then withdrawn but no arteries were secured, as the bleeding was very slight. The uterus was rendered as clean as possible, all the coagula being removed, and the parts were placed in their natural position. The integuments were kept together by means of sutures, and strips of adhesive plaster; and over these, compresses and a broad bandage were applied.

The child, when removed, was alive, since it moved, and made continued efforts, during half an hour, to breathe; but notwithstanding all our efforts, it shortly died. The woman went on remarkably well; the lochial discharge appeared in

the usual quantity; and in forty-eight days from the operation, she was perfectly well.

Extra-Uterine Fœtus.—M. Baudelocque read a report upon the case of extra uterine pregnancy, of which mention was made in a previous sitting of the Royal Academy of Medicine The fœtus appears to have been contained in a thick coriaceous cyst, containing in its substance some calcareous concretions, and appearing to be developed in the left fallopian tube. The fœtus has all the characters of one of seven or eight months: it is rolled up in the shape of a ball, and bent forwards. The tumor which was found in the abdomen of the mother had existed for ten years, during which space of time the fœtus had remained confined in the abdominal cavity. The author of this case has not been able to obtain any precise information as to the history of this woman prior to her pregnancy, nor of the symptons that attended its commencement.—*Bulletin des Sciences Medicales.*

MEDICAL JURISPRUDENCE.

A case of true Uterine Pregnancy, lasting upwards of three years, by G. J. PENKER, *District Surgeon, Iungbunzlau, in Bohemia.*—A woman, aged 27, though very weak and much emaciated, in the month of October, 1820, had all the symptoms of pregnancy. About the middle of the fifth month she began to feel the motions of the child, and at the end of the ninth, felt the precursory pains of labor. A surgeon, who was called, found the pains weak, and the os uteri not much dilated, though sufficiently so to allow him to feel that the vertex presented. In consequence of the extreme weakness of the patient, she was treated with permanent and diffusible stimulants, and with so much advantage, that at the end of six weeks she had regained the appearance of health, and had returned to her ordinary occupations. A few days after the coming on of the pains, the motions of the child became weaker, and at last gradually ceased. The size of the belly diminished, and the child appeared to be turned to the left side. The menses appeared in the tenth month, and returned regularly afterwards In December, 1821, M. Penker was called in consultation, and advised forcible delivery, which was not consented to. In October, 1822, he found the os uteri above the symphisis pubis, inclined obliquely half an inch to the right side, with the fundus to the left. The

posterior surface of the uterus, rendered as thin as a double sheet of paper by the pressure of the head of the child, had descended very low in the pelvis, so as not to be farther than an inch and a half from the orifice of the vagina. The back and feet of the child could be felt through the abdomen. Such was the state of the patient in March, 1823, up to which time she had refused to submit to any operation. The relator of the case promises to give the sequel at some future period.

CHEMICAL SCIENCE.

On the Dry Voltaic Piles of M. ZAMBONI.—The following is part of a report made by M. Ampere, on a memoir relative to the above voltaic combinations.

The energy of these dry piles ceases to diminish after two years; such, at least, M. Zamboni finds to be the case during twelves years' experience.

The diminution in the two first years varies according to the manner in which the pile is constructed.

The pile is more energetic in summer than in winter, both with regard to the intensity produced, and the promptitude with which it is manifested.

The tinned paper, called *silvered paper*, with black oxide of manganese, develops an electric force very superior to that obtained when the paper is covered with a thin leaf of copper; the latter is known under the name of *gilt paper*,(Dutch gold paper.)

A pile formed of discs of paper, tinned on one side, without any interposing substance, produces electrical effects, which can result only from the circumstance that the metallic leaf, glued to the upper surface of the paper, touches it more intimately than it does the lower surface of the paper belonging to the element next placed above.

M. Zamboni has examined whether in those piles, which he calls *binary*, the action of the elements takes place as in those which are composed of leaves of tin, covered with oxide of manganese, or in the reverse order. He found that one or the other of these results could be obtained at pleasure, by imbibing the paper attached to the tin, with various substances. When oil was used the action was opposed to that produced by oxide of manganese; when on the contrary, the paper was imbibed with honey or alkali, a solution of sulphate of zinc, or milk in a semi-coagulated state, the binary pile acts like those composed of elements powdered with oxide of manganese.

By using a dry pile of 1000 pairs, the plates not being more than five or six centimetres, (from two to two and one-third of an inch,) in diameter, M. Zamboni obtained by the condenser sparks of an inch in length, so that with such a pile an electric battery might be retained, consequently charged in a state of tension, which might be heightened at pleasure, by increasing the number of plates.

M. Zamboni thinks that a pile of 50,000 pairs of plates, of the usual diameter of leaves of tinned paper, would be a *constant* source of electricity, of which the tension would equal that of a strong common electric machine. He promises that such an instument shall be constructed, and mentions many interesting experiments to which it may be applied.

Ann. de Chim.

Natural Sources of Carbonic Acid Gas.—Bischoff and Noggerath, in Schweigger's Journal, mentions a pit on one side of the Lake of Laach, in which they found many dead animals, as birds of different kinds, squirrels, bats, frogs, toads, and also insects On descending into the pit, and gradually sinking the head, they experienced the same sensation as when held over a vat in a state of fermentation. The quantity of gas evolved varies at different times. This evolution of carbonic acid gas is more striking in the volcanic Eifel.—On the right bank of the river Kyll, nearly opposite to Birresborn, there is a spring named Brudelreis; a provincal name for a boiling spring, and applied to this because it is perpetually agitated by large bubbles of gas, the agitation being so great as to produce a noise heard four hundred yards off. In its vicinity numerous dead birds are found, killed by the carbonic acid rising from the water; and persons who kneel to drink at the spring are driven back by the gas. As MM. Bischoff and Noggerath approached this spring, they heard the noise of its ebullition at a considerable distance, and by approaching their faces to the surface of the turf in the vicinity of the spring, found that it was covered with a layer of carbonic acid and gas. They did not observe any deleterious effects produced on the surrounding trees or grass. On emptying the basin no more water was collected, shewing that it was rain, not spring water; but the gas continued to rise through the fissures of the rock in some places, with such force as to feel to the hand like wind from a bellows. Lime-water poured into one of the fissures became turbid,

and caused the appearance of ebullition again, but it was not ascertained whether the gas was pure carbonic acid or not.

DOMESTIC INTELIGENCE.

The Medical College of South Carolina, commenced its operations on the second Monday in November, under extremely encouraging circumstances—upwards of eighty students attending, being an increase of thirty since last year. To shew the progress which has been made, and plan to be pursued, we give the following extract from the Circular of the Professors.—*Editors.*

"Since the close of the Session, the Faculty, (having found their building, in many respects, incommodious) presented to the Honorable Council of the City of Charleston, a Memorial, praying that this Board would advance a sum adequate to the erection of a Hall, adapted to receive and accommodate properly the future Classes of the School, and offering in return an arrangement which would relieve the City from the burden of annual salaries to the Medical Officers of its Public Hospitals. With this proposal the Council, with characteristic munificence, complied, after due deliberation, and careful examination into the future prospects and benificial aims of the College; and advanced the sum of Fifteen Thousand Dollars, to be laid out in putting up such an edifice as shall be creditable both to the City and to this Institution.*†

An incidental and important advantage in the arrangement above alluded to, is, that it will allow of the establishment of Clinical Lectures in the Wards of these Hospitals; a mode of instruction which offers to the Student a mote peculiar opportunities of improvement in the practical knowledge of Medicine and Surgery,

The Lectures of this School will be again resumed on the second Monday of November next, and delivered as follows:

On Anatomy, by Dr. John Edward Holbrook, Fee, $20
— *Surgery*, by Dr James Ramsey, 15
— *Institutes and Practice of Medicine*, by Dr. S. Henry Dickson, 20
— *Obstetrics and Diseases of Women and Children*, by Dr. Thomas G. Prioleau, 15

* The plan of the Building has been drawn out, and contracts are now making for its erection.

† At the last Session of the Legislature, $10,000 was granted to this Institution, and the building has considerably progressed.—*Editors.*

— *Materia Medica*, by Dr. Henry R. Frost, 15
— *Chemistry and Pharmacy*, by Dr. Edmund Ravenal, 20
Natural History and Botany, by Stephen Elliott, L. L. D.

Each Student, on making application at his first Session, shall receive from the Dean a Ticket of Matriculation, for which he shall pay the further sum of Five Dollars; his name will then be enrolled on the College Books, as evidence that he has placed himself under the Government of the College.

The requisitions of the Medical Society, with which every Candidate for its Diploma is expected to comply, are as follows:—He shall have attained the age of 21 years, shall sustain a good moral character and respectable standing in the community, and shall have studied Medicine three years under the direction of some established Practitioner. He shall also have attended two full courses of the Lectures on Anatomy, Surgery, Institutes and Practice of Medicine, Materia Medica, Obstetrics, and Chemistry, of this Institution, or one full course at some other reputable Medical School, previously to becoming a member of the Medical College of South Carolina.

Each Candidate shall present on or before the first day of March of his second Session, a Thesis or Dissertation upon some subject connected with Medicine, which having been inspected and approved by one of the Professors, he shall be called up and prsvately examined by the Faculty. They being satisfied with his professional acquirements, he shall then defend his Thesis before the Medical Society, whose voice in his favor shall entitle him to his Diploma. A Premium is annually offered for the best Dissertation or Thesis in the Latin language, to shew on the part of the Society a marked encouragement of Classical attainments.

Students who shall have attended for two Sessions, any one or more of the Lectures, shall be entitled thereafter to free admission to such Lecture or Lectures.

It is considered unnecessary to do more than merely allude here to the particular advantages which this Southern School of Medicine holds out to the Southern Student.

In no other Medical School, (we are fully warranted in the assertion,) can be obtained specific instruction in the history and treatment of the diseases and forms of disease, incidental to, characteristic of, and modified by the circumstances of his own native climate. He will here enjoy free and full opportunities of observing the management of Patients in the

Public charitable Institutions of the City, and of being present at such operations in Surgery as may be performed there.

No where else can he arrive at the knowledge so important,so neccssary to him,of the diseases of the negro and mulatto races, or of their marked peculiarities of temperment, habit and constitution.

No where else in the United States will he enjoy equal or similar opportunities for the acquisition of Anatomical knowledge, subjects being procured from among the colored population, in sufficient number for every purpose, and proper dissections carried on, without offending any individual in the community. The impediments which exist in so many other places, to the prosecution of this study, are not here thrown in the path of the Student; public feeling being rather favorable than hostile to the advancement of the Science of Anatomy.

Good Board and Lodging, can be obtained in situations convenient to the Lecture Rooms, for four and five dollars per week.

S. HENRY DICKSON, M. D. *Dean of the Faculty.*

Charleston, S. C. August, 1825.

We present our readers with the following Circular of the Columbia Medical College established in Washington, which was sent us:

The Medical Department of the Columbia College in the District of Columbia.—The Columbia College in the District of Columbia, was instituted by an act of the Congress of the United States, in the winter of 1821. Soon after that period the Classical Department was brought into operation, and a course of instruction commenced. In the summer of 1824, the Medical Department was organized, and Professors appointed; and in March, 1825, a course of Lectures commenced on the different branches of Medicine.—The success which attended the commencement of the School has demonstrated the peculiar advantages of its location, and inspired its friends with the fullest confidence in its utility and success.

In order to embrace all the benefits of a winter school, the Lectures will annually commence on the first Monday in November, and continue to the last of February. During this period, Lectures will be delivered daily, and full courses be given on the various branches of Medicine.

The Medical Professors are:

Thomas Sewall, M. D. Professor of Anatomy and Physiology.
James M. Staughton, M. D. Professor of Surgery.
Thomas Henderson, M. D. Professor of the Theory and Practice of Medicine.
N. W. Worthington, M. D. Professor of Materia Medica.
Edward Cutbush, M. D. Professor of Chemistry.
Frederick May, M. D. Professor of Obstetrics.

Such arrangements have been made as will furnish the Professor of anatomy with materials for demonstration, and the class with ample opportunity for the cultivation of Practical Anatomy.

Provision has also been made for exhibiting to the class the Clinical Practice and Operative Surgery, in the Infirmary of the Washington Asylum, free of expense.

The extensive and complete apparatus of the Professor of Chemistry, will afford every facility for displaying the experimental parts of that science.

The Medical College, situated in a central part of the City, about equidistant from the Capitol and President's House, is a commodious building, and well fitted up with apartments suited to the purposes of the school.

The following extracts are from the laws adopted by the Board of Trustees for the government of the Medical Department:

Each Student, before he can receive the ticket of any Professor, shall pay five dollars to the Treasurer of the College, shall have his name enrolled on the College Books, and receive a ticket of matriculation, as evidence that he has placed himself under the government of the Trustees and Medical Professors.

The fees for attendance on the Lectures shall be fifteen dollars to each Professor, for the course.

All Students who shall have attended two full courses in this school, shall be entitled to attend succeeding courses free of expense.

All Students who may wish it, shall have the privilege of attending, gratuitously, the Lectures in the Classical Department of the College, on Natural Philosophy, Astronomy, Botany, Natural History, &c. by presenting a recommendation from the Medical Professors to the President of the College.

No Student shall be admitted to examination for a Medical degree, till—

1st. He shall have attended each Professor during two full courses, or one full course in this College, and one in some other respectable Medical Institution.

2d. He shall have studied three years under the direction of some regular Physician.

3 He shall have satisfied the Medical Professors of his classical attainments, if he be not a graduate in the Arts.

4th. He shall have entered his name with the Dean of the Medical Department, as a candidate for graduation, and delivered to him an Inaugural Dissertation on some Medical subject, thirty days, at least, before the close of the course.

There shall be an annual Commencement for conferring Medical Degrees, the time of which shall be as early after the close of the Lectures as the examination of the candidates will admit.

Before a candidate can receive the degree of Doctor of Medicine, he must pay thirty dollars for examination, and five dollars for his diploma.

At the Aniversary Meeting of the Medical Society of South Carolina, the following officers were elected:

Thomas G. Prioleau, M. D. President.
George Logan, M. D. Vice-President.
J. M. Campbell, M. D. Treasurer.
J. De La Motta, M. D Secretary.
Examining Committe.—Drs. J. Johnson, T. Aiken, J. Moultrie, F. Y. Porche, and Isaac Johnson.
Book Committee.—Drs. James Moultrie, William Michel, Thomas Y. Simons.

At the Anniversary Meeting of the "Charleston Society of Emulation," a Society composed of the Medical Students of the South Carolina Medical College, the following officers were elected:

*J. De La Motta, M. D., President.
*Thomas Y. Simons, M D., Vice-President.
James W. Taylor, Secretary.
Thomas A. Elliott, Treasurer.

* According to a law of the Society, none but Medical Practitioners can hold these offices.

PROSPECTUS

OF THE

CAROLINA JOURNAL

OF

MEDICINE, SCIENCE AND AGRICULTURE.

NEW SERIES.

EDITED BY THOMAS Y. SIMONS, M.D.

PORT PHYSICIAN,

Extraordinary Member and formerly Senior President of the Royal Physical Society, Edinburgh—Member of the Medical Society of South-Carolina—Honorary Member and Vice-President of the Charleston Medical Society of Emulation.

THE fourth number being, after considerable delay in the printing, now presented to the public, forming a volume for 1824; and Dr. MICHEL having withdrawn, it becomes the Editor to say a few words to the public and his patrons.

The *Carolina Journal* was undertaken merely as an experiment, and our expectations of its success were consequently far from being sanguine. We calculated upon having the whole labour ourselves, with but slight co-operation or aid; and we anticipated generally lukewarmness and scepticism regarding its success. In these expectations we have been in some degree deceived. We have discovered an important and pleasing fact—that there is a patriotic feeling among us, which is sensibly alive to the prosperity of any undertaking which has any relation to the reputation or the good of our country, and all which is required is, to prove the value of any plan proposed, and aid will be given.

Although having to contend with many grievous difficulties in the prosecution of this work—no exertion having been made to form agencies and to distribute it through the country, that its object might become known, and the numbers being published very irregularly—yet the patronage is so great, and the disposition to increased patronage so evident, as to justify and demand a continuance of the work. The Editor will not occupy the attention of the public with discussions upon the importance of such works. In a country like ours, it is evident, that, like the streams, which flow along and fertilize the earth, the distribution of Journals is calculated to add to the intellectual luxuriance and fertility; they embody much in a small compass, and lead and direct the mind to inquiry and research. But above all, they awaken a generous spirit of emulation—they draw forth the resources and researches of men—and thus the most interesting facts connected with countries are collected and collated upon.

Having obtained some experience in the publication of the four last numbers, the Editor trusts he will be enabled to make some important improvements. The object of this Journal being twofold, to elicit native research, and to disseminate the improvements and advances which are making in our country and the civilized countries of Europe, there will be appropriated from forty to fifty pages of each number to foreign and domestic intelligence; and the remaining portion to original articles and reviews. To obtain this object, all the American periodical works, and the most respectable of the European works, will be taken, from which the most important and interesting facts (according to the judgment of the Editor) will be extracted. For original matter, the Editor must trust, in some degree, to the co-operation of his countrymen—in which trust he does not believe he will be deceived. It is further his intention to collect all the papers written by Drs. Lining and Garden, which have been published in the different British Journals, under the confident impression that, written by our own physicians, and illustrating, in some instances, our diseases and climate, they would be highly acceptable to the patrons of this Journal; and he would be happy to receive any papers which may be in the hands of the descendants of our early physicians, or biographies of our most distinguished physicians.

The Journal will hereafter be printed by Mr. SEBRING, and published by Mr. W. R. H. TREADWAY, who will establish agencies, and to whom all communications regarding subscriptions will be made. All communications for insertion into the Journal, must be addressed to the Editor.

In order that no mistakes may exist, the Editor begs leave to say, that he will be happy to receive any communications or reviews on the following subjects, viz. Medicine—Surgery—Natural Philosophy—Chemistry—Natural History and Agriculture. Transactions of the different Agricultural, Medical and Scientific Societies throughout the State or United States, will be published in the domestic intelligence gratuitously, if sent to the Editor.

N. B. All communications must be post paid.

Charleston, Jan. 1826.